START 3

Superfund Technical Assessment and Response Team 3 – Region 8



United States Environmental Protection Agency Contract No. EP-W-05-050

ANALYTICAL RESULTS REPORT for SITE REASSESSMENT

UPPER ANIMAS MINING DISTRICT Silverton, San Juan County, Colorado

APPENDICES

TDD No. 1008-13

August 10, 2011



In association with:

TechLaw, Inc. LT Environmental, Inc. TN & Associates, Inc. Garry Struthers Associates, Inc.

APPENDIX A

Sampling Activities Trip Report (Includes Project Photolog)

URS OPERATING SERVICES

1099 18TH STREET SUITE 710 DENVER, COLORADO 80202-1908 TEL: (303) 291-8200

FAX: (303) 291-8296

January 10, 2011

Ms. Sabrina Forrest U.S. Environmental Protection Agency, Region 8 Mail Code: 8EPR-B 1595 Wynkoop Street Denver, Colorado 80202-1129

SUBJECT: START 3, EPA Region 8, Contract No. EP-W-05-050, TDD No. 1008-13

Trip Report, Upper Animas Mining District, Silverton, San Juan County, Colorado

Dear Ms. Forrest:

Attached is one copy of the trip report for sampling activities conducted for the Upper Animas Mining District Site Reassessment. Activities included surface water, sediment, and soil sampling. Field activities were conducted from October 25, 2010 through November 1, 2010. This document is submitted for your approval.

If you have any questions, please call me at 303-291-8264.

Sincerely,

URS OPERATING SERVICES, INC.

Megan Dudevoir Project Manager		EPA ACTION BLOCK
ce;	Charles W. Baker/UOS (w/o attachment) File/UOS	Approved Approved, TDD to follow Approved as corrected Disapproved Review with Original to Copy to Reply envelope enclosed
		I DALE DV

TDD No. 1008-13

Upper Animas Mining District - Trip Report Revision: 0 Date: 01/2011 Page 1 of 7

TRIP REPORT Upper Animas Mining District Silverton, San Juan County, Colorado

1.0 INTRODUCTION

URS Operating Services, Inc. (UOS), was tasked by the Environmental Protection Agency (EPA), under the Superfund Technical Assessment and Response Team 3 (START) contract # EP-W-05-050 Technical Direction Document (TDD) No. 1008-13, to conduct a site reassessment (SR) at the Upper Animas Mining District site. Specifically, START was tasked to collect as many as 69 surface water samples, 61 sediment samples, and 36 source soil samples, including QA/QC samples. Field activities were completed in accordance with the approved Field Sampling Plan (FSP) (UOS 2010). During the field sampling event 54 surface water samples, 54 sediment samples, and 14 source soil samples were collected; these sample numbers include field duplicate samples.

The site is located in Silverton, San Juan County, Colorado and is made up of publically and privately owned parcels. The investigation focused on the Animas River between U.S. Geological Survey (USGS) gauging stations A72 and A68, Mineral Creek immediately upstream of the Animas River, Cement Creek, and tributaries to Cement Creek (Figure 1) (UOS 2010).

Site activities were conducted from October 25, 2010 through November 1, 2010 and included sample collection along with photo documentation, GPS documentation, and in situ water parameter collection. All water samples were submitted to the EPA Region 8 Environmental Services Assistance Team (ESAT) laboratory for Target Analyte List (TAL) metals analysis. Additionally, sediment samples were submitted to a Contract Laboratory Program (CLP) laboratory for TAL metals and poly-chlorinated biphenyl (PCB) analysis.

2.0 BACKGROUND

Mines in the Silverton area operated between the years 1874 and 1991. Mining activities in the Upper Animas basin, including Cement Creek, produced the waste rock and mill tailings sources from which contamination spread throughout the surface water pathway. This site assessment focused on Cement Creek, a major source of metals contamination to the Animas River.

Thirty-three individual sources of mine wastes have been identified in the Cement Creek drainage, totaling approximately 188,000 cubic yards (UOS 2009). Several investigations have been conducted in the Cement Creek basin by the Colorado Department of Public Health and the Environment (CDPHE),

Upper Animas Mining District – Trip Report Revision: 0 Date: 01/2011 Page 2 of 7

but data were not appropriate for evaluating the site based on HRS criteria. Several sources of mine waste have been reclaimed to some degree through work carried out by the Bureau of Land Management (BLM), the CDPHE, the Colorado Division of Reclamation Mining and Safety (DRMS), and the Animas River Stakeholders Group (ARSG). The reclaimed waste areas are primarily in gulches that feed into lower Cement Creek. Most of the sources of mine wastes in the Upper Cement Creek basin remain in place. The wastes are rich in arsenic, cadmium, copper, lead, manganese, and zinc.

During the October 2010 sampling event, START aimed to characterize the impact of most tributaries on Cement Creek, and the impact of Cement Creek on the Animas River.

The purpose of this SR sampling event was to assist the Region 8 EPA in gathering data to determine whether this site should be considered for National Priority List (NPL) listing.

3.0 <u>SITE ACTIVITIES</u>

START members Megan Dudevoir, Bryan Williams, Andrew Longworth, and Nathan Williams mobilized to the site on October 25, 2010. START members collected 50 surface water samples, 54 sediment samples, 14 soil samples, and 4 adit water samples over the course of 8 days. The location of each sample was documented by collecting a GPS point. All sample locations, parameters, collection time, and collection date were entered into a site database. Sample containers were labeled, placed in coolers with ice, and kept under chain of custody. In the first 2 days of sampling, October 25 and 26, 2010, the temperatures were below freezing for the entire day, and snow fell throughout the day. In the higher elevations, as much as 1.5 feet of snow fell. In the remaining days of the field event, mid-day temperatures exceeded 32 degrees and START observed snow melt running into Cement Creek and its tributaries.

Site photos are provided in Appendix A.

4.0 SAMPLING AND ANALYSIS

Samples were collected in accordance with the approved FSP, with exceptions and justifications noted in Section 5.0 of this report. START personnel collected three duplicate and Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples for water and soil/sediment. Duplicate and MS/MSD samples were collected for samples UASW005, UASE005, UASW019, UASE019, UASW035, and UASE035. Surface water samples were hand-delivered to the EPA Region 8 ESAT Laboratory located in Golden, Colorado,

Upper Animas Mining District – Trip Report Revision: 0 Date: 01/2011 Page 3 of 7

on November 2, 2010. Sediment and soil samples for PCB and total metals analysis were shipped via FedEx to the following CLP laboratory on November 2, 2010:

ALS Laboratory Group 960 West LeVoy Drive Salt Lake City, Utah, 84123

Samples were received in good condition with custody seals intact. Approximate sample locations are illustrated in Figures 2 and 3 of the approved FSP.

4.1 SOIL SAMPLING

Soil samples were collected for total metals and PCB analysis. All of the soil samples were source samples and were collected in accordance with procedures described in UOS TSOP 4.16, "Surface and Shallow Depth Soil Sampling" (UOS 2005). Dedicated, disposable plastic scoops were used for source sample collection. All source samples were collected as biased grab samples from the 6- to 12-inch depth interval, with the exception of UASO001 and UASO002, which are described in Section 5.0 of this report. A sharp shooter shovel was used to accomplish the depth needed for the sample and was decontaminated between samples. Soil samples for total metals analysis were placed in 8-ounce high density polyethylene (HDPE) jars. Soil samples for PCB analysis were placed in 8-ounce amber glass jars. All samples were labeled with the sample identification number and stored in a cooler on ice pending shipping to the laboratory. Sample descriptions were logged in the field log book. A GPS point and photograph were collected for each sample location.

4.2 SURFACE WATER SAMPLING

Surface water samples (including adit water) were collected for total and dissolved metals analysis. Surface water sampling for total metals was conducted by facing upstream and immersing the 500 mL HDPE sample bottle directly into the sample media. Surface water sampling for dissolved metals was conducted by immersing a length of HDPE tubing in the sample media. Water was drawn through a 0.45 micron filter and into the 500 mL HDPE sample bottle using a peristaltic pump. Sample bottles and filters were certified pre-cleaned by the provider, and water was drawn through the tubing and discarded prior to sample collection to ensure contamination was not introduced by sampling supplies. Samples were preserved with nitric acid. UOS measured field parameters, including pH, temperature, and electrical

Upper Animas Mining District - Trip Report Revision: 0 Date: 01/2011 Page 4 of 7

conductivity, of each sample. Field instrumentation was calibrated daily, and all calibration and field data was recorded in the field log book. Sampling was conducted from the farthest downstream location to the farthest upstream location to minimize the potential for cross-contamination. All surface water sample locations were photographed, recorded with GPS, and documented in the field log book during sampling activities.

4.3 SEDIMENT SAMPLING

Sediment samples were collected for total metals and PCB analysis. Sediment sampling was conducted according to UOS TSOP 4.17, "Sediment Sampling" (UOS 2005). Sediment sampling locations corresponded to surface water sampling locations and were collected immediately after the surface water sample was collected, proceeding from the most downstream location to the most upstream location. START attempted to collect primarily fines and avoid gravel, but in some locations fines were not readily available, and the sample contained some larger grains or gravel. Sediment samples were collected using a disposable, dedicated scoop. Total metal samples were placed into 8-ounce HDPE jars, and PCB samples were placed in 8-ounce amber glass jars. Sediment samples were labeled and stored in a cooler on ice pending shipping to the laboratory. All sediment sample locations were photographed, recorded with GPS, and documented in the project log book during sample activities.

5.0 <u>FIELD SAMPLING PLAN DEVIATIONS</u>

The following deviations from the FSP were made in the field based on assessments made by the START project manager and field team members:

- Samples UASW038 and UASE038 (Illinois Gulch) were not collected because the confluence of
 Illinois Gulch and Cement Creek was located on private property for which START did not have
 an access agreement.
- Samples UASW048 and UASE048 (Elk Tunnel discharge) were not collected because START personnel could not identify any flow from Elk Tunnel.
- Samples UASW051 and UASE051 (Mammoth Tunnel discharge) were not collected because START personnel could not identify any flow from Mammoth Tunnel.

Upper Animas Mining District – Trip Report Revision: 0 Date: 01/2011 Page 5 of 7

- Samples UASW053 and UASE053 (Cement Creek downstream of Prospect Gulch) were not
 collected because they were located on private property for which START did not have an access
 agreement.
- Samples UASW055 and UASE055 (Cement Creek upstream of Prospect Gulch) were not
 collected because they were located on private property for which START did not have an access
 agreement.
- Samples UASW057 and UASE057 (Dry Gulch discharge) were not collected because START personnel could not identify any flow from Dry Gulch.
- The planned location for samples UASW011 and UASE011 was below all of the Gold King 7
 Level waste piles. These samples were instead collected where runoff from the upper piles
 crosses the mine access road. The planned location could not be safely accessed at the toe of the
 lower piles due to an extremely steep slope, loose material, and snow.
- In addition to adit water, sediment samples were collected from adit discharge points, as START determined it would provide additional information.
- Fewer soil samples than planned were collected. START personnel dug below snow in several locations on each pile and preformed XRF analysis of the driest soil in the hole. In-situ XRF analysis showed waste piles were more homogeneous that expected, so the number of samples required for characterization was reduced. Sample location identification numbers for soil samples were changed in the field to number them sequentially as they were collected. Soil sample identifications are as follows

UASO01: American Tunnel

UASO02: American Tunnel

UASO03: Red and Bonita Mine – top pile

UASO04: Red and Bonita Mine – middle pile

UASO05: Red and Bonita Mine – bottom pile

UASO06: Mogul North Mine waste pile

UASO07: Grand Mogul stope – west side

UASO08: Grand Mogul stope – east side

Upper Animas Mining District -- Trip Report Revision: 0 Date: 01/2011 Page 6 of 7

- UASO09: Grand Mogul Mine waste piles east side
- UASO10: Grand Mogul Mine waste piles center
- UASO11: Grand Mogul Mine waste piles west side
- UASO12: Mogul Mine waste piles west side
- UASO13: Mogul Mine waste piles adjacent to shed
- UASO14: Mogul Mine waste piles east side
- Soil samples collected in the vicinity of the American Tunnel, UASO001 and UASO002, were
 obtained from 0 to 1 inch because the ground was frozen and the planned depth of 6 inches could
 not be obtained.
- Soil samples were not collected at the Gold King 7 Level Mine because the waste piles for which START had an access agreement could not be accessed due to unsafe conditions, including extremely steep slope, loose waste rock material, and snow.
- A sediment sample for PCB analysis was not collected at UASE059 (at the toe of Grand Mogul Mine) because there was not enough sediment available for both metals and PCB analysis. Metals analysis was deemed more critical to project goals.
- A sediment sample for PCB analysis was not collected at UASE012 (above Gold King 7 Level Mine) because there was not enough sediment available for both metals and PCB analysis. Metals analysis was deemed more critical to project goals.
- A sediment sample for PCB analysis was not collected at UASE030 (Cement Creek upstream of Grand Mogul Mine) because there was not enough sediment available for both metals and PCB analysis. Metals analysis was deemed more critical to project goals.
- Sample AD005 was not collected because there is no adit discharge from Grand Mogul Mine.
- Surface water and sediment samples were not collected at locations 025, 026, 027, 028, and 031 because START was not able to reach the highest elevations due to snowy and potentially unsafe conditions.
- Soil samples were not collected from the Queen Anne Mine, the Adelphin Mine, and the Columbia Mine because START was not able to reach the highest elevations due to snowy and potentially unsafe conditions.

Upper Animas Mining District - Trip Report Revision: 0 Date: 01/2011 Page 7 of 7

6.0 <u>LIST OF REFERENCES</u>

URS Operating Services, Inc. (UOS). 2005. "Technical Standard Operating Procedures for the Superfund Technical Assessment and Response Team (START), EPA Region 8."

URS Operating Services, Inc. (UOS). 2009. "Data Gap Analysis Report for Targeted National Priority Listing: Upper Animas Mining District San Juan County Colorado." October 13, 2009.

URS Operating Services, Inc. (UOS). 2010. "Field Sampling Plan: Upper Animas Mining District San Juan County Colorado." October 21, 2010.



Photo 1 Collection of UASW029 and UASE029 (Animas River downstream of Silverton).

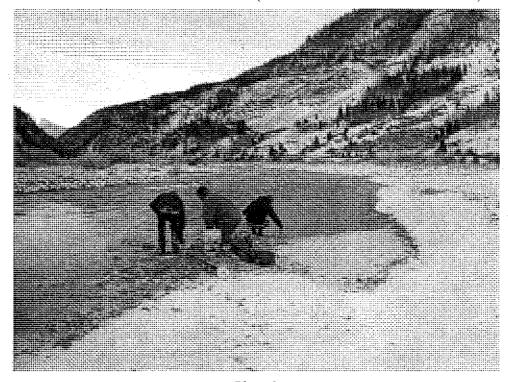


Photo 2
Collection of UASW032 and UASE032 (Animas River downstream of Mineral Creek).



Photo 3 Collection of UASW034 and UASE034 (Animas River upstream of Mineral Creek).

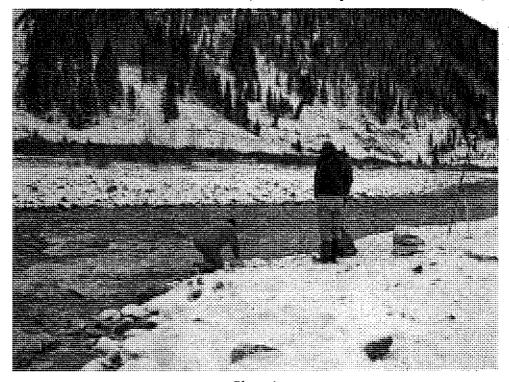


Photo 4
Collection of UASW001 and UASE001 (Animas River downstream of Cement Creek).



Photo 5
Collection of UASW002 and UASE002 (Cement Creek upstream of Animas River).

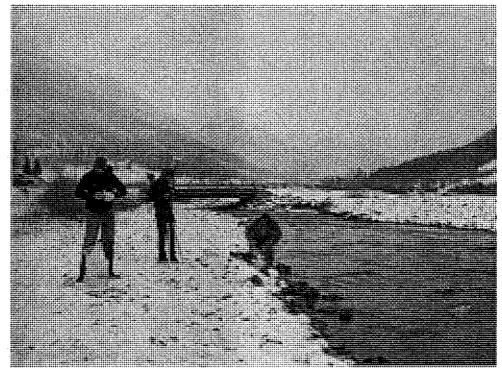


Photo 6 Collection of UASW003 and UASE003 (Animas River upstream of Cement Creek).



Photo 7

Collection of UASW035 and UASE035 (Cement Creek downstream of Kendrick Smelter).

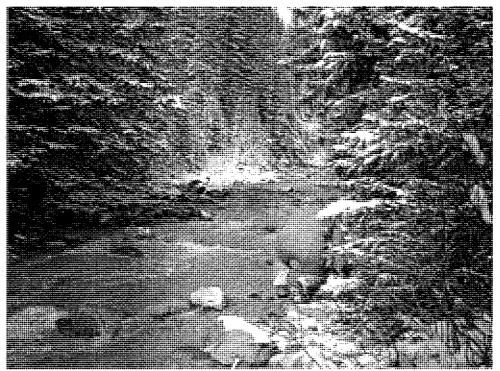


Photo 8 Collection of UASW036 and UASE036 (Cement Creek upstream of Kendrick Smelter).



Photo 9
Collection of UASW037 and UASE037 (Cement Creek downstream of Illinois Gulch).

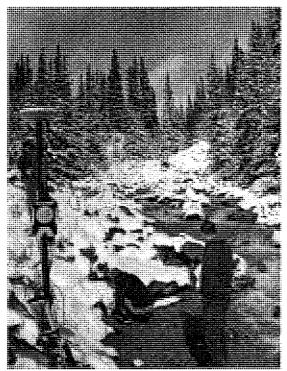


Photo 10
Collection of UASW039 and UASE039 (Cement Creek upstream of Illinois Gulch, and downstream of Ohio Gulch).

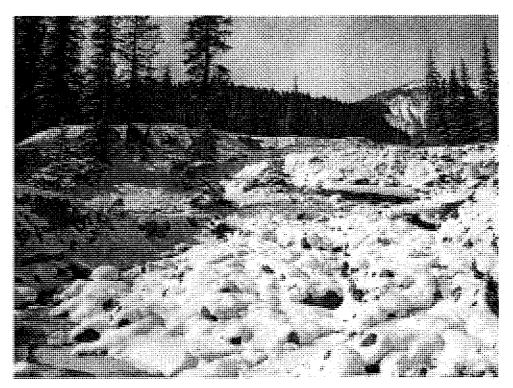


Photo 11 Location of UASW040 and UASE040 (Ohio Gulch discharge).

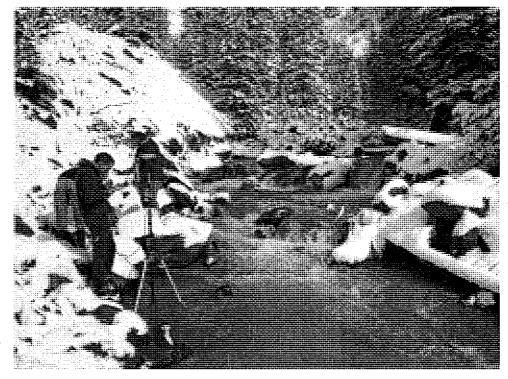


Photo 12 Collection of UASW041 and UASE041 (Cernent Creek upstream of Ohio Gulch).

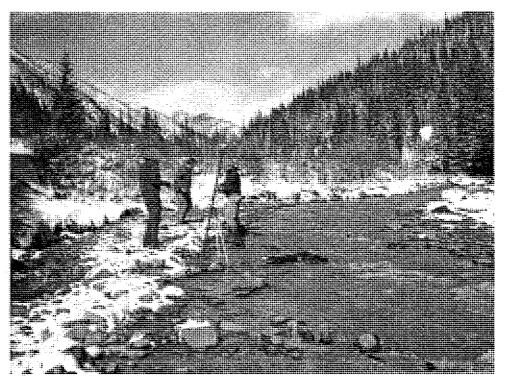


Photo 13 Collection of UASW042 and UASE042 (Cement Creek downstream of Anglo Saxon Mine).

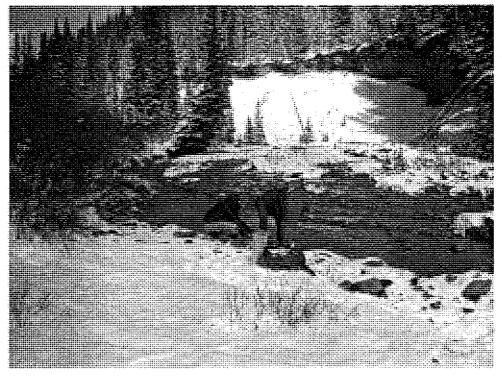
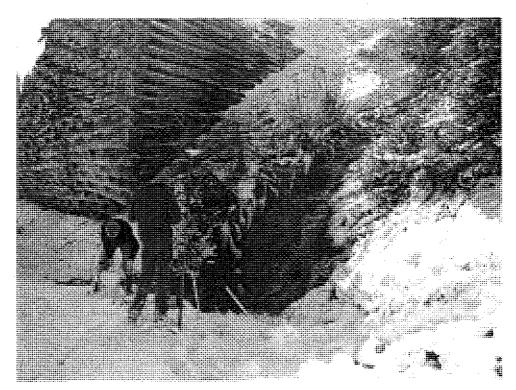


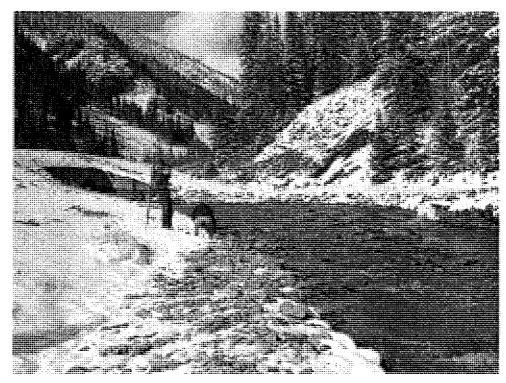
Photo 14
Collection of UASW044 and UASE044 (Cement Creek upstream of Anglo Saxon Mine and downstream of Minnesota Gulch).



 ${\bf Photo~15} \\ {\bf Collection~of~UASW043~and~UASE043~(discharge~from~Anglo~Saxon~Mine)}.$



Photo 16 Collection of UASW045 and UASE045 (discharge from Minnesota Gulch).



 ${\bf Photo~17}$ Collection of UASW046 and UASE046 (Cement Creek upstream of Minnesota Gulch).

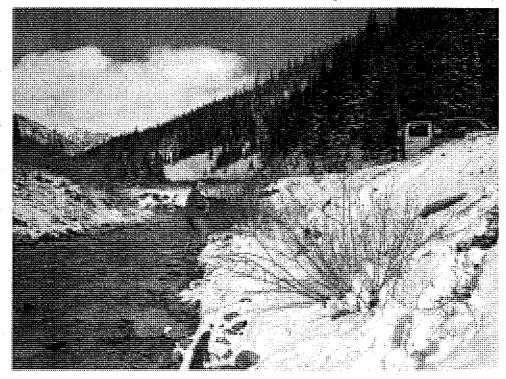


Photo 18
Collection of UASW047 and UASE047 (Cement Creek downstream of Elk Tunnel and Fairview Gulch).

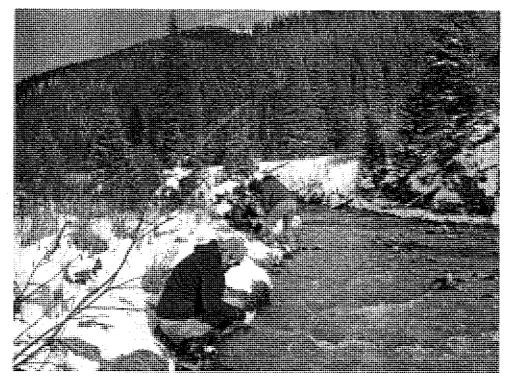


Photo 19 Collection of UASW049 and UASE049 (Cement Creek downstream of Georgia Gulch).



Photo 20 Collection of UASW050 and UASE050 (Cement Creek upstream of Georgia Gulch).



 ${\bf Photo}~21\\ {\bf Collection}~of~UASW054~and~UASE054~(discharge~from~Prospect~Gulch).$



Photo 22 Collection of UASW056 and UASE056 (Cement Creek downstream of Dry Gulch).



Photo 23 Collection of UASW058 and UASE058 (Cement Creek upstream of Dry Gulch).



Photo 24
Collection of UASW004 and UASE004 (Cement Creek downstream of the confluence with the south fork of Cement Creek).

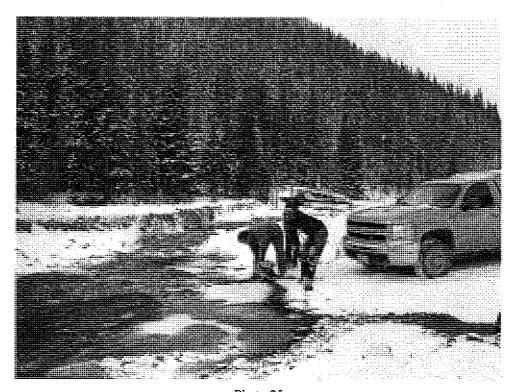


Photo 25
Collection of UASW006 and UASE006 (Cement Creek upstream of the confluence with the south fork of Cement Creek).



Photo 26 Collection of UASW005 and UASE005 (south fork of Cement Creek).

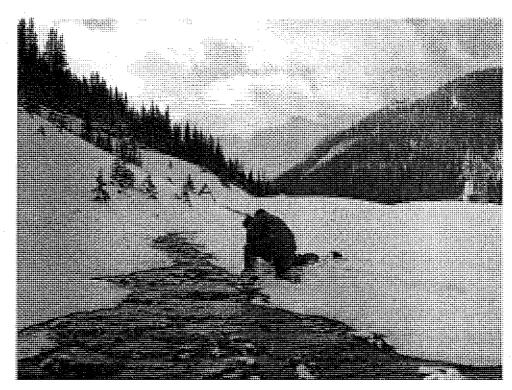


Photo 27
Collection of UASW007 and UASE007 (American Tunnel discharge, immediately upstream of Cement Creek).



Photo 28 Collection of UAAD001 (discharge from the American Tunnel).



Photo 29
Collection of UASW008 and UASE008 (Cement Creek upstream of the American Tunnel).



Photo 30
Collection of UASW009 and UASE009 (Cement Creek downstream of the confluence with the north fork of Cement Creek).



Photo 31
Collection of UASW013 and UASE013 (Cement Creek upstream of the confluence with the north fork of Cement Creek).

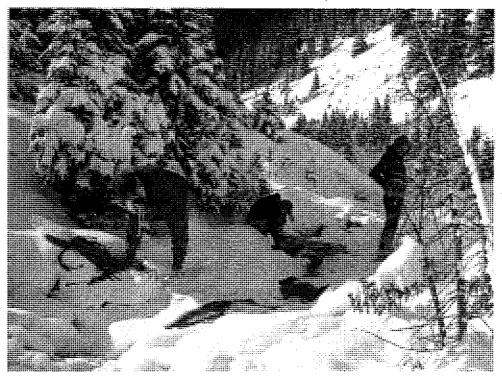


Photo 32 Collection of UASW010 and UASE010 (north fork of Cement Creek).

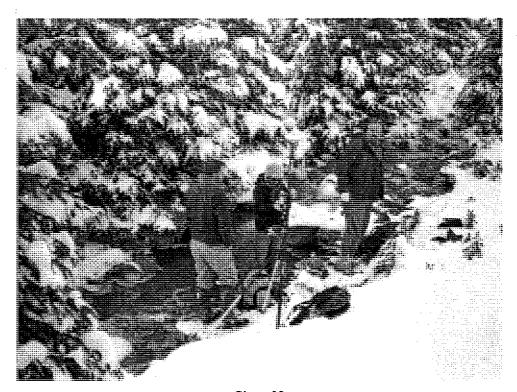


Photo 33 Collection of UASW014 and UASE014 (Cement Creek downstream of Red and Bonita Mine).



Photo 34 Collection of UASW015 and UASE015 (roadside channel below Red and Bonita Mine).



 ${\bf Photo~35} \\ {\bf Collection~of~UAAD003~and~UAAD003~(Red~and~Bonita~Mine~adit)}.$

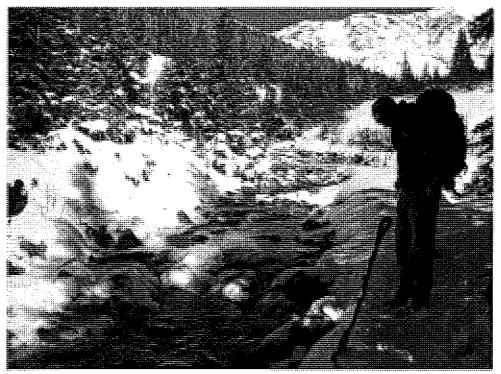


Photo 36 Collection of UASW016 and UASE016 (Cement Creek upstream of Red and Bonita Mine).



 $\label{eq:Photo 37} Photo \ 37$ North fork of Cement Creek – flow is low and area is mostly frozen over.

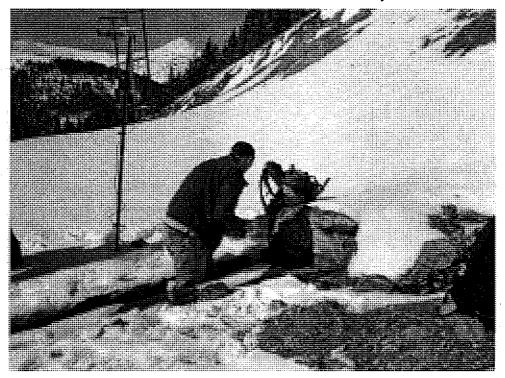


Photo 38 Collection of UAAD002 (Gold King 7 Level adit).

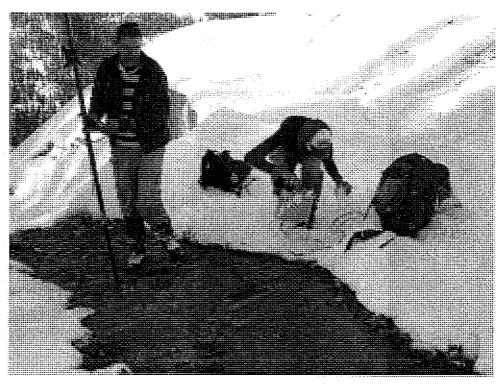


Photo 39
Collection of UASW011 and UASE011 (north fork of Cement Creek downstream of Gold King 7
Level Mine – at road crossing).

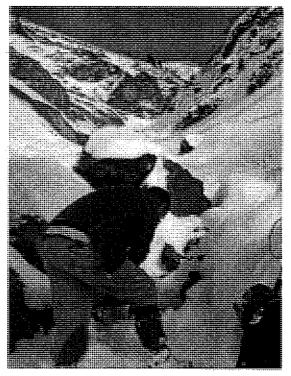


Photo 40
Collection of UASW012 and UASE012 (north fork of Cement Creek upstream of Gold King 7
Level Mine).

TDD No. 1008-13
T:\START3\Upper Animas Reassessment\Photo\Photolog.doc



 ${\bf Photo}~41\\ {\bf Location}~of~UASW017~and~UASE017~(Cement~Creek~downstream~of~Mogul~Mine~wetland),}$

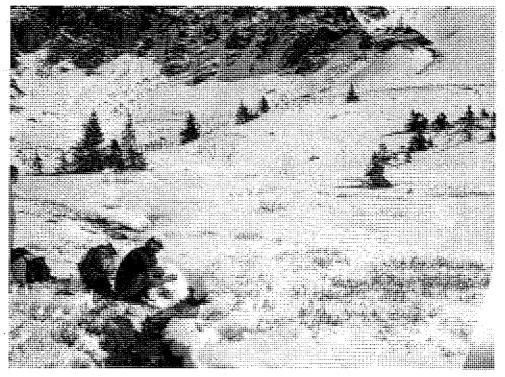


Photo 42 Collection of UASW019 and UASE019 (flow through Mogul Mine wetland).

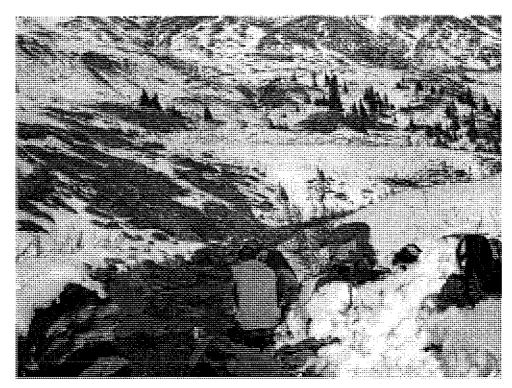


Photo 43 Collection of UASW018 and UASE018 (Cement Creek upstream of Mogul Mine wetland).



Photo 44
Collection of UASW018 and UASE018 (Cement Creek upstream of Mogul Mine wetland).



 ${\bf Photo~45} \\ {\bf Collection~of~UASW020~and~UASE020~(Cement~Creek~upstream~of~Mogul~Mine)}.$

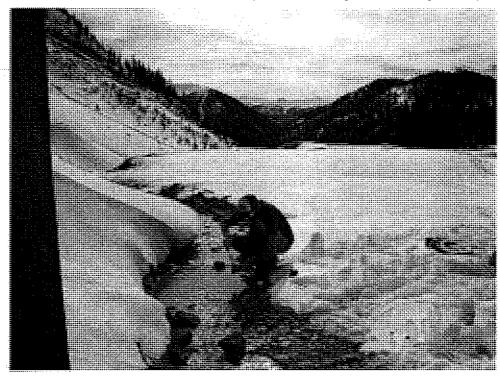


Photo 46 Collection of UAAD004 (Mogul Mine adit discharge).

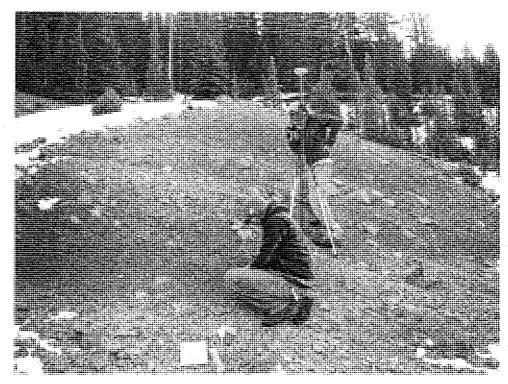


Photo 47 Collection of UASO002 (American Tunnel).



Photo 48 Collection of UASO003 (top pile at Red and Bonita).



Photo 49 Collection of UASO004 (middle pile at Red and Bonita).

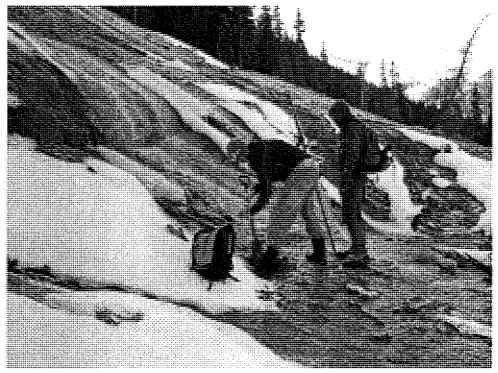


Photo 50 Collection of UASO005 (bottom pile at Red and Bonita).

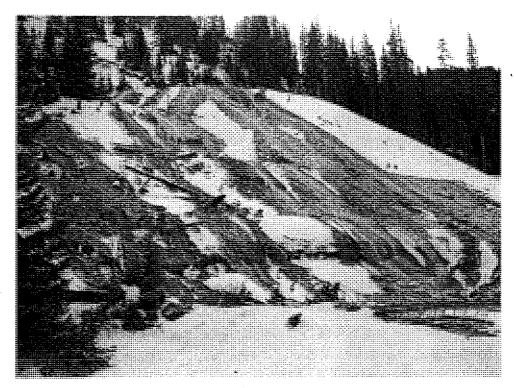


Photo 51 Red and Bonita waste piles.

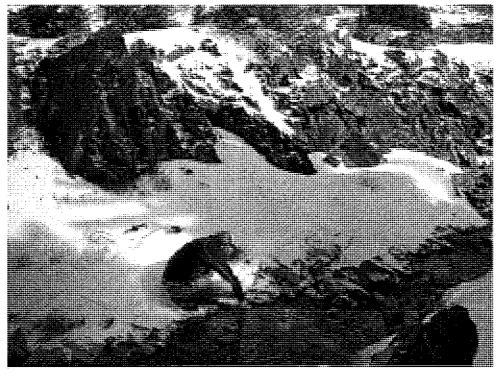
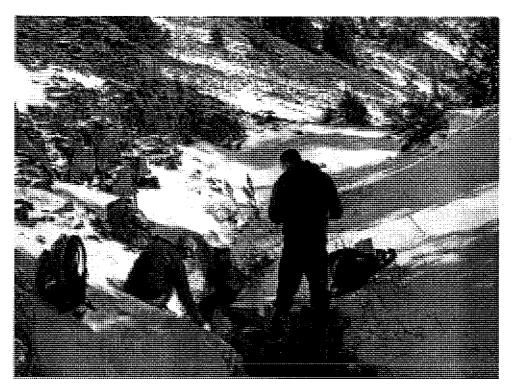


Photo 52 Collection of UASW021 and UASE021 (Cement Creek downstream of Mogul North Mine).



 ${\bf Photo~53} \\ {\bf Collection~of~UASW022~and~UASE022~(drainage~from~of~Mogul~North~Mine)}.$



Photo 54 Collection of UASO006 (Mogul North waste pile).



 $\begin{array}{c} {\rm Photo}\ 55 \\ {\rm Seepage}\ {\rm from}\ {\rm the}\ {\rm toe}\ {\rm of}\ {\rm the}\ {\rm Mogul}\ {\rm North}\ {\rm waste}\ {\rm pile}. \end{array}$

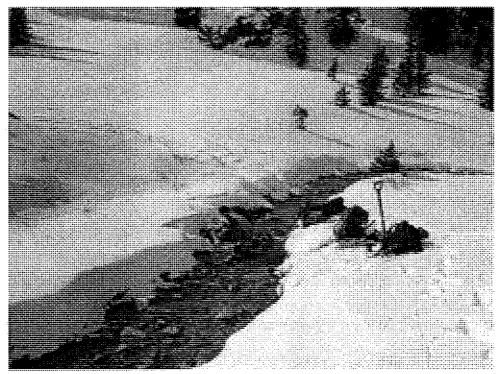


Photo 56 Collection of UASW023 and UASE023 (Cement Creek upstream of Queen Anne Mine).

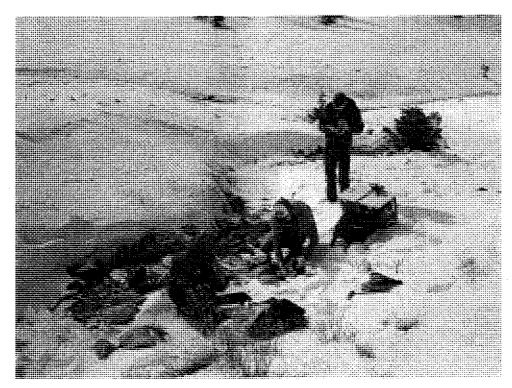


Photo 57 Collection of UASW024 and UASE024 (drainage from Queen Anne Mine).



Photo 58
Collection of UASO007 (Grand Mogul Mine stope – west side).

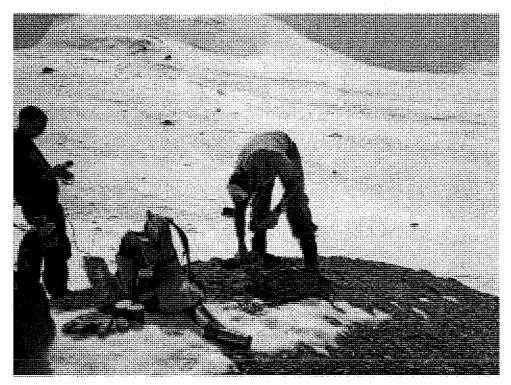


Photo 59 Collection of UASO008 (Grand Mogul Mine stope – east side).

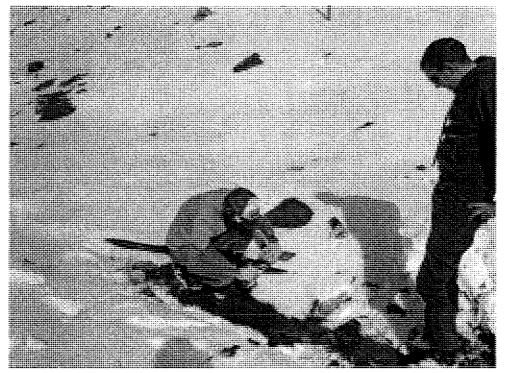


Photo 60 Collection of UASW059 and UASE059 (drainage from Grand Mogul Mine).

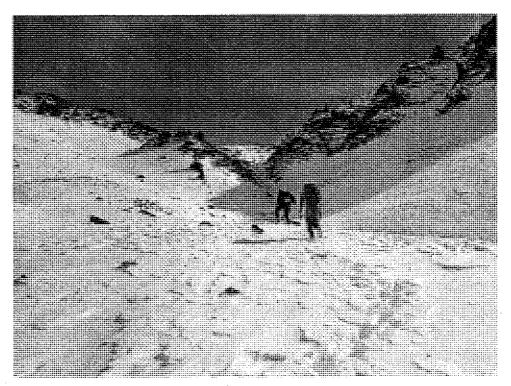


Photo 61 Sample team hiking above Grand Mogul Mine.



Photo 62 Collection of UASW030 and UASE030 (Cement Creek upstream of Grand Mogul Mine).

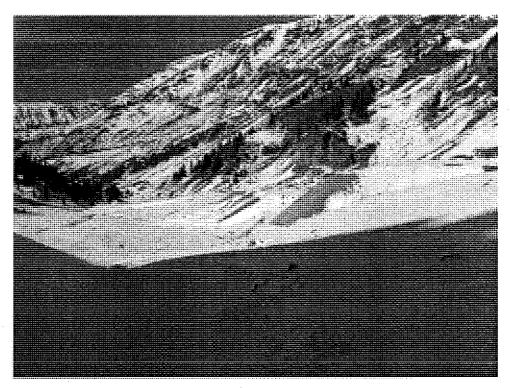


Photo 63 Grand Mogul Mine and Mogul Mine stope waste piles.

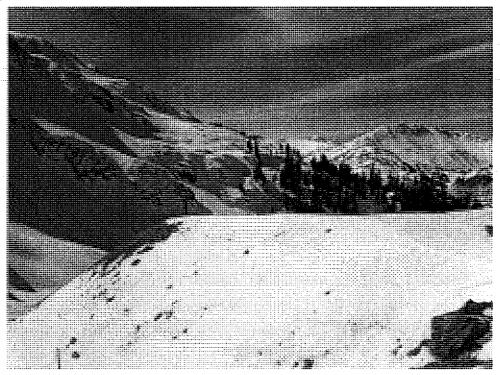


Photo 64
Grand Mogul Mine easternmost waste pile.

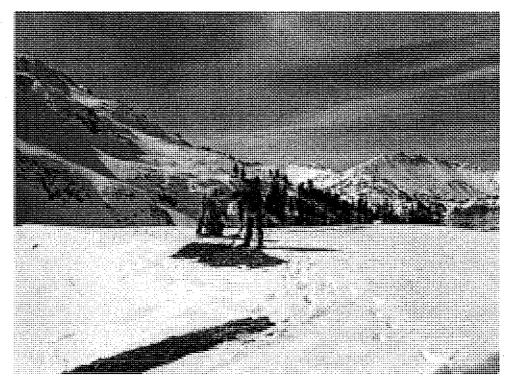


Photo 65
Collection of UASO009 (Grand Mogul Mine waste piles – east side).



Photo 66
Collection of UASO010 (Grand Mogul Mine waste piles – center).

TDD No. 1008-13
T:\START3\Upper Animas Reassessment\Photo\Photolog.doc

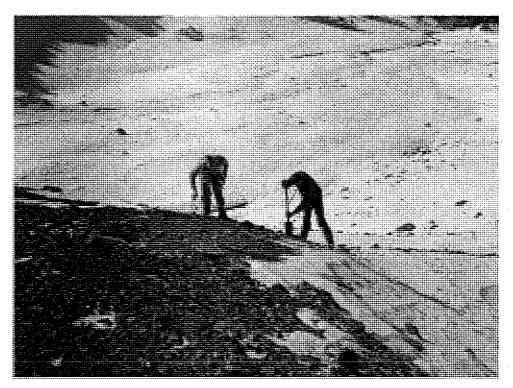
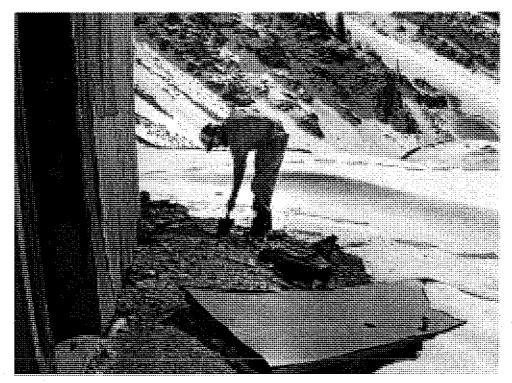


Photo 67
Collection of UASO011 (Grand Mogul Mine waste piles – west side).



Photo 68 Collection of UASO012 (Mogul Mine waste piles – west side).



 ${\bf Photo}~69 \\ {\bf Collection~of~UASO013~(Mogul~Mine~waste~piles-adjacent~to~shed)}.$

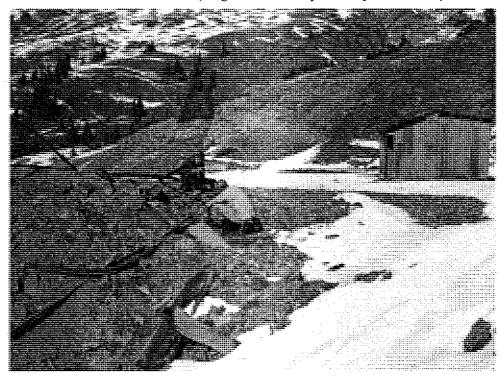


Photo 70
Collection of UASO014 (Mogul Mine waste piles – east side).

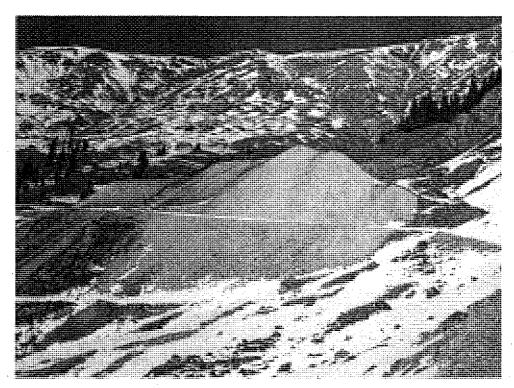


Photo 71 Mogul Mine waste piles.

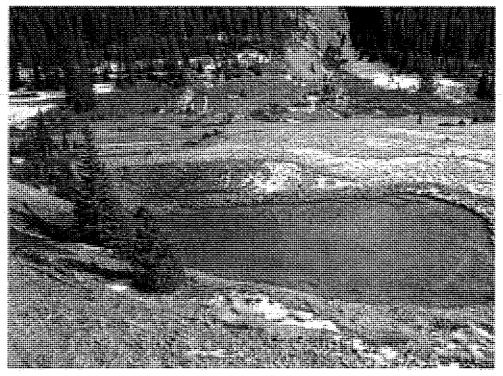
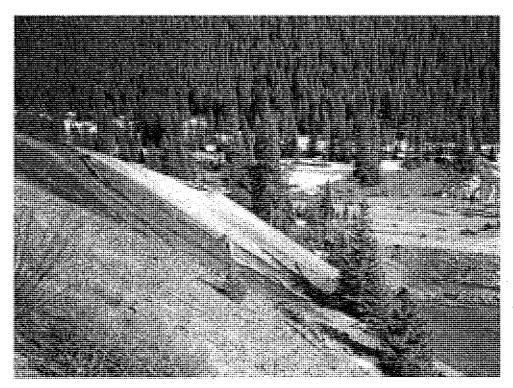


Photo 72
Treatment pond in the vicinity of the Mammoth Tunnel.



 $\label{eq:Photo} Photo \ 73$ Runoff entering treatment pond in the vicinity of the Mammoth Tunnel.



Photo 74
Steep slope of Gold King 7 Level waste piles.

APPENDIX B

Data Validation Packages: Form I Data Sheets and Chain of Custody Forms

REGION VIII DATA VALIDATION REPORT INORGANIC

ALS Laboratory Group	EPW05026	MH35E5	
Contractor Laboratory	Contract No	SDG No.	Laboratory DPO/Region
Sabrina Forrest			
RPW/ØSC Name			
40755 / 1008-16	Upper Animas	Mining District	
Case/TDD No.	S	ite Name	Operable Unit

Review Assigned Date:	December 15, 2010	Data Validator:	Fred Luck
Review Completion Date:	February 18, 2011	Report Reviewer:	Lesley Boyd

Sample ID	Matrix	Analysis
мнз5Е5	Sediment	CLP -Metals
MH35E6		
МН35Е7	·	
MH35E8		7 .
MH35E9		
MH35F0		
MH35F1	•	
MH35F2	·	
MH35F3		
MH35F4		
MH35F5		
MH35F6		
MH35F7		

Data Validation Report

Sample ID	Watrix	Analysis
MH35F8	Sediment	CLP -Metals
MH35F9		
MH35G0		
MH35G1		
MH35G2		
MH35G3	·	
MH35G4		

URS Operating Services, Inc.

Data Validation Report

	DATA QUALITY STATEMENT	
()	Data are ACCEPTABLE according to EPA Functional guideling by the reviewer.	es with no qualifiers (flags) added
()	Data are UNACCEPTABLE according to EPA Functional Guid	lelines
(X)	Data are acceptable with QUALIFICATIONS noted in review.	
Teleph	one/Communication Logs Enclosed? Yes	NoX
CLP Prattentio	oject Officer Attention Required? Yes NoX	_ If yes, list the items that require

INORGANIC DATA VALIDATION REPORT

REVIEW NARRATIVE SUMMARY

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-15% of the results reported in <u>each</u> of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, Case No. 40755, SDG No. MH35E5, consisted of twenty sediment samples for metals by ICP-AES and ICP-MS (ISM01.2). The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Sample ID	Elements.	- Qualifiers	Reason for Qualification	Review Section
All Samples	Antimony	U	Blank Contamination	3
MH35E5, MH35E6, MH35F0, MH35F1, MH35F2, MH35F3, MH35F4, MH35F5, MH35F6, MH35F7, MH35F9, MH35G1, MH35G2, MH35G3, MH35G4	Beryllium			
MH35E5, MH35E6, MH35F0, MH35F3, MH35F4, MH35F6, MH35F7, MH35G0, MH35G1, MH35G2	Cadmium			
MH35F3, MH35F5, MH35G1	Calcium			
MH35F8	Chromium			
MH35F8	Magnesium			
MH35E9, MH35F0, MH35F8, MH35G1, MH35G3	Potassium			
MH35E9, MH35F8	Silver			
All Samples	Sodium			
MH35E5, MH35E6, MH35E7, MH35E8, MH35E9, MH35F0, MH35F1, MH35F2, MH35F3, MH35F4, MH35F5, MH35F6, MH35F8, MH35F9, MH35G1, MH35G3	Thallium			

Data Validation Report

Sample ID	Elements	Qualifiers	Reason for Qualification	Review
		Quanticis	Xeason or Quantication	Section
MH35E7, MH35E8, MH35E9,	Dam.11	T	B	
MH35F8, MH35G0	Beryllium	J÷	Potentially false positive	4
MH35E5, MH35E6 MH35E7,	70	1	detection in ICS check sample	·
MH35E8, MH35F1, MH35F2,	Potassium	1		Į
MH35F3, MH35F4, MH35F5,		Ì		
MH35F6, MH35F7, MH35F9,		ł		
MH35G0, MH35G2, MH35G4	·			
MH35E5, MH35E6, MH35E7,		1		ĺ
MH35E8, MH35F0, MH35F1,	Silver	ŀ		
MH35F2, MH35F3, MH35F4,				
MH35F5, MH35F6, MH35F7,				
MH35F9, MH35G0, MH35G1,		·	-	
MH35G2, MH35G3, MH35G4			·	
MH35F7, MH35G0, MH35G2,		1	•	
MH35G4	Thallium			
All Samples	Barium,	J/UJ	Original &Duplicate both >5x the	. 6
	Zinc		CRQL and RPD > 20%	
·	a	1 . 1		
	Cadmium		Original and/or Duplicate < 5x	
			the CRQL and absolute	
. '		ļ [difference > CRQL	
		[MS 30 - 74%R, Post Digestion	7
			Spike $\%R \ge 75\%$	
٠.,			Spike 70K ≥ 1378	
·	Antimony,	ŀ	MS <30%R, Post Digestion Spike	•
	Selenium.	}	%R≥75%	
	Silver		7027	
		<u> </u>	:	
•	Caman	J	1.50 - 1050/D D - 21	·
	Copper	,	MS > 125%R, Post Digestion	
	•	<u> </u>	Spike %R ≤ 125%	
	Arsenic,		Serial Dilution %D > 10%	- 8
	Beryllium,		Scriat Dilution %D > 10%	. 8
	Cadmium,		{	
	Cobalt,		·	1
ĺ	Copper,]	
. ·	Nickel,		į	.
•	Potassium.		• .	
	Sodium,	.		
	Zinc			.
	-HIV			

2.

Yes X

Comments:

No__

None.

Data Validation Report

1.

PRESERVA	TION AND HOLDING TIMES
All technical l	nolding times and preservation criteria were met.
Yes	No_X
Comments:	The samples were analyzed within 180 days for the ICP metals. According to the Sample Log-In Sheet and case narrative, the two sample coolers were each received at a temperature of 7° C, which is outside the recommended temperature range of $4 \pm 2^{\circ}$ C. The Sample Log-In Sheet further indicates that neither cooler contained a Cooler Temperature Indicator Bottle, as indicated on the form to be required. There is also no indication that SMO was contacted regarding this issue, neither is any documentation of the resolution or indication of how the cooler temperature was derived provided. The TR/COC also did not designate a sample for laboratory QC, but the documentation of the resolution of this issue is provided in the SDG.
	When the sample preservation criteria are not met, but the sample analysis and extraction are within the technical holding times then professional judgment is used whether to qualify the data. No action was taken since the preservation exceedence was minimal and the extraction and holding times were well within the established parameters.
	The sampler did not designate a specific sample on the TR/COC for Laboratory QC; in accordance with reported previous Region 8 direction, the laboratory did select a sample (MH35G4) for laboratory QC. The reviewer has not been provided any information regarding PE, field blank, or rinsate samples; therefore cannot evaluate whether the selected sample was a PE, field blank, or rinsate sample.
	No other shipping or receiving problems were noted. Chain-of-custody, summary forms, and raw data were evaluated.
VERIFICATION	T CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION ON (ICV AND CCV)
SOW requirem	continuing calibration verification standards (ICV and CCV, respectively) met ents.
Yes_X_	No
Comments:	None.
The calibration cyanide, and 80	verification results were within 90-110% recovery for metals, 85-115% for -120% for mercury.

	The continui	ng calibration standards were run at 10% frequency or every two hours.
	Yes_X_	No
	Comments:	None.
3.	BLANKS	
	The initial an requirements	d continuing calibration blanks (ICB and CCB, respectively) met SOW
	Yes X	No
-	Comments:	For the ICP-AES analyses, the ICB was rerun.
	The continuir	ng calibration blanks were run at 10% frequency.
	Yes_X_	No
	Comments:	Continuing calibration blanks were run every 10 samples.
•		
· ·	A laboratory/ delivery group	preparation blank was run at the frequency of one per twenty samples, or per sample p (whichever is more frequent), and for each matrix analyzed.
	Yes_X_	No
	Comments:	None.
• .	All analyzed t	planks were free of contamination.
	Yes	No_X_
	Comments: T	he following table lists the blanks with contamination that resulted in sample
	1.6	and the country with contamination that resulted in sample

qualification, elements present, affected samples, and data qualifiers:

Blank Contaminants

			A SPANO SAU				# PARE 2. 125 VALUE
Blank	Contam-	CROL	MDL	Concentration	Associated	Concentration	Qualifier/
ID.	inant	(mg/Kg)	(mg/Kg)	Found in Blank	Samples	Foundin	Adjustment
		- 1446-1467 - 1446-1467	("B'-16)	(mg/Kg)		Sample (mg/Kg)	
PB	Antimony	1	0.0097	0.013	MH35E5	1.3	2.1 U
					MH35E6	0.68	1.4 U ·
					MH35E7	0.22	1.3 U
]		i		MH35E8	0.98	1.6 U
	,		•		MH35E9	0.79	1.3 U
				,	MH35F0	0.44	1.7 U
			i		MH35F1	1.1	1.6 U
			ļ	·	MH35F2	0.56	1.4 U
	1	İ			MH35F3	0.87	1.6 U
					MH35F4	0.88	1.4 U
	1			·	MH35F5	1.2	1.3 U
	1	[•	MH35F6	0.38	1.5 U
	ľ			•	MH35F7	0.58	1.9 ប
	1 .				MH35F8	0.94	2.5 U
	1				MH35F9	0.41	1.3 U
					MH35G0	0.42	1.4 U
				•	MH35G1	1.4	3.8 U
	1				MH35G2	0.44	1.6 U
	[MH35G3	0.59	1.3 U
	<u></u>				MH35G4	0.33	1.6 U
PB	Beryllium	0.5	0.0032	0.011	MH35E5	0.44	1.0 U
	1				MH35E6	0.33	0.72 U
]			MH35F0	0.66	0.87 U
		1			MH35F1	0.39	0.78 U
		[MH35F2	0.38	0.68 ปั
•					MH35F3	0.41	0.82 U
					MH35F4	0.38	0.71 ป
		İ			MH35F5	0.41	0.64 U
	.	•			MH35F6	0.41	0.74 U
					MH35F7	0.57	. 0.93 U
	1			•	MH35F9	0.46	0.66 U
			ŀ		MH35G1	0.29	1.9 U
]				MH35G2	0.47	0.78 ป
	[1		MH35G3	0.46	0.64 U
797	0.1	0.5	0.000=		MH35G4	0.56	0.81 U
PB	Cadmium	0.5	0.0027	0.500	MH35E5	0.74	1.0 U
•			j	j	MH35E6	0.66	0.72 U
				,	MH35F0	0.78	.0.87 U
	. [I			MH35F3	0.52	0.82 U
	l				MH35F4	0.47	0.71 U
,				ľ	MH35F6	0.51	0.74 U
					MH35F7	0.79	0.93 U
				İ	MH35G0	0.35	0.68 U
]	1	MH35G1	0.45	1.9 U
DE					MH35G2	0.44	0.78 U
PB	Calcium	500	1.7	4.404	MH35F3	791	822 U
ļ			. [MH35F5	230	644 U
				·	MH35G1	1150	1900 U
PB	Chromium	1	0.026	1.000	MH35F8	1.6	2.5 U
PB	Magnesium	500	1.2	500	MH35F8	447	1240 U

			Stand Wy				
Blank	Contain-	CRQL	MDL	Concentration	Associated	Concentration -	Qualifier/
TD.	inant	(mg/Kg)	(mg/Kg)	Found in Blank	Samples	Found in	Adjustment
2702012.000				(mg/Kg)	1 070 500	Sample (mg/Kg)	
PB	Potassium	500	5.8	55. 883	MH35E9	375	674 U
					MH35F0	842	865 U
! ·		t 			MH35F8	209	1240 U
					MH35G1	1160	1900 U
					MH35G3	510	636 U
PB	Silver	0.5	0.0023	0.010	MH35E9	0.48	0.67 U
	<u> </u>				MH35F8	. 0.22	1.2 U
PB	Sodium	500	0.73	18.271	MH35E5	117	1040 U
·					MH35E6	60.2	723 U
					MH35E7	49.7	641 U
					MH35E8	· 92.9	814 U
					MH35E9	180	674 U
 					MH35F0	58.1	865 U
				4	MH35F1	88.1	781 U
				,	MH35F2	75.6	676U
					MH35F3	76.1	822 U
·					MH35F4	68.7	714 U
					MH35F5	69.8	644 U
					MH35F6	90.6	741 U
	. :				MH35F7	109	926 U
i i	•				MH35F8	32.3	1240 U
Ĭ					MH35F9	62.4	657 U .
					MH35G0	56.6	684 U
					MH35G1	77.5	1900 U
					MH35G2	100	782 U
<u> </u>					MH35G3	25.2	636 U
					MH35G4	94.7	813 U
PB	Thallium	0.5	0.0015	0.007	MH35E5	0.72	1.0 U
-					MH35E6	0.41	0.72 U
	i				MH35E7	0.32	0.64 U
					MH35E8	0.45	0.81 U
		•			MH35E9	0.19	0.67 U
<u> </u>	•				. MH35F0	0.31	0.87 U
					MH35F1	0.62	0.78 U
			,		MH35F2	0.41	0.68 U
					MH35F3	0.75	0.82 U
					MH35F4	0.69	0.71 U
				ļ	MH35F5	0.59	0.64 U
				.	MH35F6	0.44	0.74 U
	j	i	· 1	·	MH35F8	0.26	1.2 U
.			-	•	MH35F9	0.36	0.66 U
	1				MH35G1	0.43	1.9 U
				1	MH35G3	0.42	0.64 U

4. INDUCTIVELY COUPLED PLASMA - INTERFERENCE CHECK SAMPLE (ICP-ICS)

	Ference check sample (ICS) was run at the beginning and end of each sample and every 20 analytical samples, but <u>not</u> prior to the ICV.
Yes_X_	No
Comments:	None.
	ery of the analytes in the ICS solutions were within the range of 80-120% or the \pm the CRQL.
Yes_X_	No
Comments:	None.
Sample results interference wa	for aluminum, calcium, iron, and magnesium were less than the ICSA values or nas noted.
Yes_X_	No NA
Comments:	None.
Sample results	contain potential false positives and false negatives.
Yes_X_	No
Comments: negatives that	The following table lists the elements with potential false positives or false resulted in sample qualification, affected samples, and data qualifiers:

ICP Interferences

Element	Goncentration Foundarin ICSA Sample (ug/L)	Affected Samples	Concentration Found in Sample	Qualifier/ Adjustment
		MH35E7	(mg/Kg)	
Beryllium [.]	0.37	MH35E8	>MDL	J+
		MH35E9		
		MH35F8		·
		MH35G0		
		MH35E5		
Potassium	1020	MH35E6		
·		MH35E7		
		MH35E8		
		MH35F1	,	
		MH35F2		
		MH35F3	÷	
	• •	MH35F4		
		MH35F5		
		MH35F6		
		MH35F7		
		MH35F9	•	
		MH35G0	•	
	•	MH35G2		
		MH35G4		
C:1	0.015	MH35E5		
Silver	0.015	MH35E6		
		MH35E7		
		MH35E8		
		MH35F0		
		MH35F1		
•		MH35F2		
		MH35F3	,	
•		MH35F4		
		MH35F5		
		MH35F6		
		MH35F7		
		MH35F9		
•	[MH35G0		
•]	MH35G1		
	1	MH35G2		
		MH35G3		
· · · · · · · · · · · · · · · · · · ·	, ,	MH35G4		
Thallium	0.056	MH35F7		
		MH35G0	. '	
		MH35G2		_
		MH35G4		



5. LABORATORY CONTROL SAMPLE

samples of a similar matrix, or one per sample delivery group (whichever is more frequent).						
Yes_X_	No					
Comments:	None.					

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer

All results were within control limits OF 70-130%.

Yes X No____

Comments: None.

6. FORM 6 & 12 - DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes_X_ No__ NA___

Comments: None.

The RPDs were calculated correctly.

Yes_X_ No__ NA___

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were within $\pm 20\%$ (limits of $\pm 35\%$ apply for soil/sediments/tailings samples).

Yes___ No_X NA___

Comments: The following table lists the duplicate results outside control limits, samples

affected, and data qualifiers:

Element	RPD	QC Limit	Samples Affected	Qualifiers
Barium	57%	20%	All samples	J/UJ
Zinc	75%			•

7.

For sample co	oncentra indow o	ations less the CRQL (a	ıan five tir bsolute dif	nes the C fference <	RQL, duplic	cate analysis res soils).	ults were within
Yes	No_2	X NA	- 	•		•	
Comments:	The faffec	following ta ted, and dat	ble lists th a qualifier	ne duplica s:	te results ou	tside control lin	nits, samples
Element		Sample Duplicat Result (mg/Kg	e	RPD	5x CRQL (mg/kg)	Samples Affected	Qualifiers
Cadmium		2.73 / 1.13	83 9		.5	All samples	J/UJ
SPIKE SAMD A matrix spike one per sample Yes_X Comments:	e sample	e was analy: ry group (w NA	hichever i	very twe is more fi	nty or fewer equent).	samples of a sir	nilar matrix, or
The percent re	coverie	s (%Rs) we	re calculat	ed correc	tly.	ż	
Yes_X_	No	_ NA_					
Comments:	None	•		·		•	•
Spike recoveri	es were is four t	within the i	range of 72 ke concen	5-125% (tration).	an exception	is granted whe	re the sample
Yes	No_ <u>3</u>	<u>C</u>	•				
Comments:	omments: The following table lists the spike recoveries outside control limits, post digestion spike recoveries, samples affected, and data qualifiers:						

Element	Matrix Spike %R	Post-Digestion %R		Qualifiers
Antimony	13%	168%	All samples	1/UJ
Cadmium	61%	83%		
Copper	182%	77%		J
Selenium	6%	114%		1/UJ
Silver	1%	87%		

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Ag, Hg).

Yes_X_	No	NA
Comments:	None	

8. ICP SERIAL DILUTION

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes_X_	No
Comments:	None.
	•

The serial dilution was without interference problems as defined by the SOW.

Yes__No_X

Comments: The following serial dilution %Ds were greater than 10% and the original sample result was at least 50* the MDL:

But years you consider the second		eles (Mai de Seconda Maio de Secondo de Secondo de Secondo de Secondo de Secondo de Secondo de Secondo de Sec	Maria de la composición de la complementa del complementa de la complementa del complementa de la complementa de la complementa de la complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del complementa del co	
Element		nce Samples Affe	eted Qual	ifiers
· Arsenic	30%	All samples	J	
Beryllium	14%			
Cadmium	11%		}	
Cobalt	13%			
Copper	18%			
Nickel	15%			
Potassium	19%		,	

9. REGIONAL QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

Regional QA/QC was conducted as initiated by the EPA Region 8.

30%

30%

Yes__ No_ NA X

Comments:

Sodium

Zinc

The SDG shows no indication of EPA Region 8 initiating any additional QA

QC.

10. FORM 10 - INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes_X_ No___

Comments: None.

11. FORM 12 - PREPARATION LOG

Information on the preparation of samples for analysis was reported on Form 12.

Yes X No No

Comments: None.

12. FORM 13 - ANALYSIS RUN LOG

A Form 13 with the required information was filled out for each analysis run in the data package.

Yes X No No

Comments: None.

Data Validation Report

13. Additional Comments or Problems/Resolutions Not Addressed Above

Page 1 of the Evidence Audit Checklist (EAC) indicates three airbills are associated with this SDG, however documentation is only provided for Airbill Number 3430, which documents the shipment of four packages. The laboratory only documented receipt of two coolers, so it is unclear as to what the other two packages were that were included on the airbill.

INORGANIC DATA QUALITY ASSURANCE REVIEW

Region VIII

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ The associated numerical value is an estimated quantity but the result may be biased high.
- J- The associated numerical value is an estimated quantity but the result may be biased low.
- U J The reported quantitation limit is estimated because Quality Control criteria were not met.

 Element or compound may or may not be present in the sample.
- N J Estimated value of a tentatively identified compound. (Identified with a CAS number.)
 ORGANICS analysis only.
- U The material was analyzed for, but was not detected above the level of the associated value.

 The associated value is either the sample quantitation limit or the sample detection limit.

SR

SSR

URS Operating Services, Inc.

Δ	CR	O	ΝV	MS	

Atomic Absorption AAAg Silver CCB Continuing Calibration Blank **CCV** Continuing Calibration Verification CFR Code of Federal Regulations CLP Contract Laboratory Program **CRA** CROL standard required for AA **CRQL** Contract Required Quantitation Limit CRI CRQL standard required for ICP CVCold Vapor · EPA U.S. Environmental Protection Agency Graphite Furnace Atomic Absorption **GFAA** . Hg Mercury **ICB** Initial Calibration Blank ICP Inductively Coupled Plasma . ICS Interference Check Sample **ICSA** Interference Check Sample (Solution A) **ICSAB** Interference Check Sample (Solution AB) **ICV** Initial Calibration Verification LCS Laboratory Control Sample LRA Linear Range Verification Analysis MDL Method Detection Limit PDS Post Digestion Spike OC Quality Control RPD Relative Percent Difference RPM : Regional Project Manager RSD Percent Relative Standard Deviation \$A Spike Added SAS Special Analytical Services SDG Sample Delivery Group SOW Statement of Work

Sample Result

Spiked Sample Result

USEPA - CLP 1A-IN INORGANIC ANALYSIS DATA SHEET

EPA	SAMPLE	NO.
	MH35E5	

							 -
b Name	: ALS Labora	atory Group	Contract:]	CPWO9	9036		
b Code	: DATAC C	Mod. Ref.	No.:	SDG	мо.: <u>м</u>	H35E5	
trix:	Soil		Lab Sample	ID:	1030768001	-	
Solids	: 48.3		Date Recei	ved:	11/03/2010		
ncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t)::	ng/kg		
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum	6860			P	
	7440-36-0	Antimony					
•	7440-38-2	Arsenic					
	7440-39-3	Barium					•
	7440-41-7	Beryllium	Ì		-		
	7440-43-9	Cadmium					:
	7440-70-2	Calcium	1100			P	
	7440-47-3	Chromium					-
*	7440-48-4	Cobalt					
	7440-50-8	Copper	·				
	7439-89-6	Iron	78100			P	
	7439-92-1	Lead					
	7439-95-4	Magnesium	3030			P	
	7439-96-5	Manganese					
	7439-97-6	Mercury					
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7440-02-0	Nickel					
	7440-09-7	Potassium	1700		Ē	Р	J+ 1040
	7782-49-2	Selenium					
	7440-22-4	Silver				1	
	7440-23-5	Sodium	117.	J	Ē	P	1040
	7440-28-0	Thallium					
	7440-62-2	Vanadium					
•	7440-66-6	Zinc					
	57-12-5	Cyanide			,		
			·				
	·						
lor Be	fore: BROWN	Clarit	ty Before:		Texture: M	EDIUM	
TOT De	LOTE. DIOMA		ry berore.				·:
lor Af	ter: YELLOW	Clari	ty After: CLEAR		Artifacts:	15%	
	_						
omments			1 1			£	.
E: The	reported v	alue is estin	ated due to the	pres	sence of inter	reren	ce.
			<u> </u>				

USEPA - CLP 1B-IN INORGANIC ANALYSIS DATA SHEET

EPA	SAMPLE	NO.
	MH35E5	

	oratory Group	Contract: 1	מלידות ב	222				
Code: DATAC			EPWU:	9036				
	_ Case No.: 407!	Mod. Ref.	No.:	SDG	No.: <u>1</u>	1H35E	5	
rix: Soil		Lab Sample	ID:	1030768001				
olids: <u>48.3</u>		Date Recei	ved:	11/03/2010				
entration Uni	ts (ug/L, ug or	mg/kg dry weigh	t):r	ng/kg				
CAS No.		Concentration	С	0	м	Ī		
7429-90-5								
7440-36-0		1.3	J	N	MS	2.1	UT	M
7440-38-2		45.3	Ť	E	MS	13`	A	<u>.</u>
7440-39-3		559.		*	MS	17	1	e e
7440-41-7		0.44	J	E	MS	I / ~	/) T	77
7440-43-9	 	0.74	J	*NE	MS	1.0	の子	N
7440-70-2						1,,,,	~ ~	u i
7440-47-3	Chromium	6.6		*	MS	I	— A N	<u> 4</u>
7440-48-4	Cobalt	3.9		E	MS	1	N	
7440-50-8	Copper	48.7		NE	MS	1	PM	
7439-89-6	Iron					1		
7439-92-1	Lead	459.			MS			
7439-95-4	Magnesium					1		
7439-96-5	Manganese	333.		*	MS	13		131
7439-97-6	Mercury						,	
7440-02-0	Nickel	3.4		. Е	MS	1	H	
7440-09-7	Potassium					<u>.</u>		V.
7782-49-2	Selenium	1.6	J	- N	MS	5,2	- 	
7440-22-4	Silver	4.5		N	MS	J+	n	;
7440-23-5	Sodium							de
7440-28-0	Thallium	0.72	J		MS	1.0	U	س مسالع
7440-62-2	Vanadium	49.7		*	MS	- -		-12
7440-66-6	Zinc	205.		*E	MS	J	7	,1
57-12-5	Cyanide				<u> </u>	1.0 H	MI	6 [4
							······	
or Before: ORAN		ty Before:		Texture: M		•		

olor After: WHITE	Clarity After: CLOUDY	Artifacts:
omments:		
E: The reported value	is estimated due to the pre	sence of interference.

USEPA - CLP 1A-IN INORGANIC ANALYSIS DATA SHEET

EPA	SAMPLE	NO.
	MH35E6	

trix:	Soil	***	Lab Sample	ID:	1030768002		
Solid:	s: <u>69.2</u>		Date Recei	ved:	11/03/2010		
ncenti	ration Units	(ug/L, ug or	mg/kg dry weigh	t):1	ng/kg		
	CAS No.	Analyte	Concentration	С	Q	м	
	7429-90-5	Aluminum	7030			P	
	7440-36-0	Antimony					
	7440-38-2	Arsenic					
	7440-39-3	Barium					
	7440-41-7	Beryllium					
	7440-43-9	Cadmium					
	7440-70-2	Calcium	1010			P	
	7440-47-3	Chromium					
	7440-48-4	Cobalt					
	7440-50-8	Copper				+	
	7439-89-6	Iron	68800			P	
	7439-92-1	Lead	1000			P	
	7439~95-4	Magnesium	4080				
	7439-96-5	Manganese					
	7439-97-6	Mercury Nickel				1	
	7440-02-0 7440-09-7	Potassium	889.		E	P	723 U
	7782-49-2	Selenium	003.		 	+	
	7440-22-4	Silver			<u> </u>		•
•	7440-23-5	Sodium	60.2	J	E	Р	7230
	7440-28-0	Thallium				+	اء
	7440-28-0	Vanadium			<u> </u>		2/
	7440-62-2	Zinc					
	57-12-5	Cyanide					•
	<u> </u>						
	l				1		
olor Be	fore: BROWN	Clari	ty Before:	•	Texture: N	4EDIUM	
dor Af	ter: YELLOW	Clari	ty After: CLEAR		Artifacts	:	
							
mments	:		•		sence of inte		

USEPA - CLP 1B-IN INORGANIC ANALYSIS DATA SHEET

EPA	SAMPLE	NO.
	MURSER	

						MH35	E0
Lab Name	ALS Labora	tory Group	Contract:	EPW090	36		
Lab Code	E: DATAC C	Case No.: 4075	5 Mod. Ref.	No.: _	SDG N	۱o.: ۱ <u>۱</u>	4H35E5
Matrix:	Soil	-	Lab Sample	ID: 1	.030768002		
% Solids	s: 69.2		Date Recei	ved: 1	.1/03/2010		
	(· · · · · · · · · · · · · · · ·		•				
Concentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t):mg	/kg		
	CAS No.	Analyte	Concentration	С	Q	M]
	7429-90-5	Aluminum					
	7440-36-0	Antimony	0.68	ij	N	MS	1.4 05
	7440-38-2	Arsenic	34.1		E	MS]丁 光
•	7440-39-3	Barium	210.		*	MS	1.401
	7440-41-7	Beryllium	0.33	J	E	MS	1 ~ 77 1) /
	7440~43~9	Cadmium	0.66	J	*NE	MS	10.120 4
	7440-70-2	Calcium				1	MA
	7440-47-3	Chromium	6.4		÷	MS	J 4 212111
	7440-48-4	Cobalt	4.3		E	MS	1 /
	7440-50-8	Copper	53.0		NE	MS	J #
	7439-89-6	Iron					
	7439-92-1	Lead	322.			MS	
	7439-95-4	Magnesium	· · · · · · · · · · · · · · · · · · ·				12-A-19
	7439-96-5	Manganese	506.		*	MS	T " 3.60 T "
	7439~97-6	Mercury		· .			
-:	7440-02-0	Nickel	4.0		E	MS-	II *
	7440-09-7	Potassium					w i
	7782-49-2	Selenium	0.81	J	N	MS	3.60 3 4
	7440-22-4	Silver	. 2.5		N	MS	3.60 T 4
	7440-23-5	Sodium	· · · · · · · · · · · · · · · · · · ·				
	7440-28-0	Thallium	0.41	J		MS	0.720,7
	7440-62-2	Vanadium	44.8		*	MS	-F-A
	7440-66-6	Zinc	199.	İ	*E	MS	5+ # 0.72 U # 2 1 2/18/11
	57-12-5	Cyanide					2/18/11
J							
		1					•

olor Before: ORANGE	Clarity Before:		Texture: MEDIUM
olor After: BROWN	Clarity After:	CLEAR	Artifacts:
omments:		·	
E: The reported value	is estimated due t	o the presen	ce of interference.

USEPA - CLP 1A-IN INORGANIC ANALYSIS DATA SHEET

EPA	SAMPLE	NO.
	MUSSET	

ab Code	e: DATAC	Case No.: 4075	Mod. Ref.	ио.: _	\$DG	No.: <u>N</u>	1H35E5	
atrix:	Soil		Lab Sample	ID: 1	030768003			
Solids	s: <u>78.0</u>		Date Recei	ved: <u>1</u>	1/03/2010			
ncenti	estion Units	tua/T. ua or	mg/kg dry weigh	it) - ma	/ka			
)IICCIICI	Tacton United				, 3	т	1	
	CAS No.	Analyte	Concentration	С	Q	M		
	7429-90-5	Aluminum	8570			P		
	7440-36-0	Antimony						
	7440-38-2	Arsenic						
	7440-39-3	Barium						
	7440-41-7	Beryllium						
	7440-43-9	Cadmium				<u> </u>		
	7440-70-2	Calcium	2560			P		
	7440-47-3	Chromium					j	
	7440-48-4	Cobalt					1	
	7440-50-8	Copper						
	7439-89-6	Iron	20800			P]	
	7439-92-1	Lead						
	7439-95-4	Magnesium	5610			P		
	7439-96-5	Manganese				<u> </u>]	
	7439-97-6	Mercury]	
•• ••	7440-02-0	Nickel		·			l	16
	7440-09-7	Potassium	745.		E	P	17+	•
	7782-49-2	Selenium			•		J+	
	7440-22-4	Silver					٠.,,	- 1
	7440-23-5	Sodium	49.7	J	E	P] 641	U
	7440-28-0	Thallium	•					1
	7440-62-2	Vanadium						4
	7440-66-6	Zinc]	
	57-12-5	Cyanide				_		
					 	+		
lor Be	fore: BROWN	Clarit	y Before:	<u> </u>	Texture: N	EDIUM		
		·····	y After: CLEAR					
TOT WY	CGT. TEUTION	CTATT(., ALCCI. CARAIC		_ 111 0114003	•		
mments	::							

USEPA - CLP 1B-IN INORGANIC ANALYSIS DATA SHEET

EPA	SAMPLE	NO.
	мн35е7	

ab Code	: DATAC	Case No.: 4075	Mod. Ref.	No.:	SDG	No.: N	1H35E5	<u>; </u>
atrix:			Lab Sample					
icrix;	2011		_					
Solids	: 78.0		Date Recei	ved: <u>1</u> 3	L/03/2010			
maantr	ation Unite	lua/I. ua or	mg/kg dry weigh	t): ma/	'kg			
)licelict	acton onics	(ug/11, ug 01	Y				7	
	CAS No.	Analyte	Concentration	С	Q	М		
	7429~90-5	Aluminum					۱. م.	TH
	7440-36-0	Antimony	0.22	J	N	MS	1,30	13/1
	7440-38-2	Arsenic	5.9		E	MS	13	21
	7440-39-3	Barium	108.		*	MS	12.	JH H W
	7440-41-7	Beryllium	1.0		Е	MS	72+	4
	7440-43-9	Cadmium	5.8		*NE	MS	7 .	H
5	7440-70-2	Calcium					į	se-it
	7440-47-3	Chromium	6.5		*	MS	F	7 3
	7440-48-4	Cobalt	10.9		E	MS	1	M
	7440-50-8	Copper	119.		NE	MS	ŢŢ	M
•	7439-89-6	Iron					_	
	7439-92-1	Lead	612.			MS	1	•
	7439-95-4	Magnesium	-				J	"Auto
	7439-96-5	Manganese	6750		D*	MS	سلعل	40 13
	7439-97-6	Mercury						M
	7440-02-0	Nickel	8.2		E	MS	11	AFS: A -OF M
	7440-09-7	Potassium						-
	7782-49-2	Selenium	0.099	J	N	MS	_] 32 -	ر برن۔
	7440-22-4	Silver	1.5		N	MS	J <i>T</i> +	W
	7440-23-5	Sodium						2/18
	7440-28-0	Thallium	.0.32	J		MS	0,6	40.
	7440-62-2	Vanadium	30.6		*	MS	<u> = -</u>	
	7440-66-6	Zinc	1470		D*E	MS		2/18
	57-12-5	Cyanide						2010
]	
]	
	L		<u></u>	·			_	
olor Be	fore: BLACK	Clari	ty Before:		_ Texture:	MEDIUM	<u>1</u>	
	<u> </u>				Autifart.			
olor Af	ter: COLORL	ESS Clari	ty After: CLEAR		_ Artifact	s:		
omments	::		mated due to the			F7		

E	PA S	SAMPI	·Ε	NO.
	Ŋ	4H35E	8	

					<u> </u>	MH35) F.R	
b Name	e: ALS Labor	atory Group	Contract:	EPW0903	6			<u>.</u>
b Code	e: DATAC	Case No.: 407	55 Mod. Ref.	No.:	SDG	No.:	MH35E	5
trix:	Soil	· · · · · · · · · · · · · · · · · · ·	Lab Sample	ID: 10	30768004			
Solids	s: <u>61.4</u>	· · · · · · · · · · · · · · · · · · ·	Date Recei	ved: <u>11</u>	/03/2010			
ncenti	ration Units	s (ug/L, ug or	mg/kg dry weigh	t): mg/	kg			
	CAS No.	Analyte	Concentration	С	Q	М	7	
	7429-90-5	Aluminum	12300			P	-	
	7440-36-0	Antimony				1	-	
	7440-38-2	Arsenic			· · · · · · · · · · · · · · · · · · ·	 	-	
	7440-39-3	Barium		-			-	
	7440-41-7	Beryllium			······································		4	
	7440-43-9	Cadmium	· · · · · · · · · · · · · · · · · · ·				┨ .	
	7440-70-2	Calcium	2010			P	-	
	7440-47-3	Chromium	2020	··		- 	-	
	7440-48-4	Cobalt	 				4	
	7440-50-8	Copper					┪	
	7439-89-6	Iron	58100		· · · · · · · · · · · · · · · · · · ·	P	-	
	7439-92-1	Lead				+-	┨	
	7439-95-4	Magnesium	4270			P	-	
	7439-96-5	Manganese	42.10			- 	- 1	
	7439-97-6	Mercury			··········	-	-{	
	7440-02-0	Nickel		-			=	
	7440-09-7	Potassium	1260		E	P	1 - x	4
	7782-49-2	Selenium	1200		Ei	1 -	5+ 814	
	7440-22-4	Silver				 	-	
	7440-23-5	Sodium	92.9	J	Е	P	914	. Y≝ ²
	7440-28-0	Thallium	, , , , , ,	<u> </u>	.Es	F	10,,	7
	7440-62-2	Vanadium			<u> </u>	-	-	2/1
	7440-66-6	Zinc					1	1
	57-12-5	Cyanide			 -	-	1	
	3, 12 3	Суанисе				-	ł	
						+	ł	
	, , , , , , , , , , , , , , , , , , ,	.1				ــــــــــــــــــــــــــــــــــــــ	J	
or Bei	fore: BROWN	Clarit	y.Before:		Texture: M	EDTIM		
or Aft	ter: YELLOW	Clarit	y After: CLEAR		Artifacts:			
ments:		alue is estim	ated due to the	presenc	e of inter	feren	ce.	

EPA	SAMPLE	NO.
	мн35Е8	

		Case No.: 407			SDG N 1030768004	_		
trix:	Soil		Lab Sample	TD:	1030766004			 .
Solids	: 61.4		Date Recei	ved:	11/03/2010			
ncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	it): [ng/kg			
	CAS No.	Analyte	Concentration	С	Q	M		
	7429-90-5	Aluminum]	-N
	7440-36-0	Antimony	0.98	J	N	MS	1.6	UIM
	7440-38-2	Arsenic	27.3		E	MS	11	U
	7440-39-3	Barium	261.		*	MS	7	n
	7440-41-7	Beryllium	0.89		E	MS	۴ ل [72
	7440-43-9	Cadmium	2.0		*NE	MS] [12
;	7440-70-2	Calcium						4
	7440-47-3	Chromium	5.6		*	MS	F-	$-\mu$
	7440-48-4	Cobalt	12.3		E	MS] I	n
	7440-50-8	Copper	167.		NE	MS	\mathcal{I}	K
	7439-89-6	Iron					1	
	7439-92-1	Lead	734.			MS	_	
	7439-95-4	Magnesium	•					11/1-1
	7439-96-5	Manganese	2710		D*	MS		3/9
	7439-97-6	Mercury						N
	7440-02-0	Nickel	5.2		E	·MS·	1	L
	7440-09-7	Potassium					١.,.	B
	7782-49-2	Selenium	0.52	J	N	MS] '{//	-0 -
	7440-22-4	Silver	2.8	L	N	MS	124	-
•	7440-23-5	Sodium						21 .5
	7440-28-0	Thallium :	0.45	J		MS] Q.2	310
	7440-62-2	Vanadium .	41.1		*	MS	1-3-	
	7440-66-6	Zinc	447.		*E	MS	17	3/12
	57-12-5	Cyanide					-	2418
]	
lor Be	fore: ORANGE	Clari	ty Before:		Texture: M	DIUM	<u> </u>	
lon 71-f	ter: TAN	Clari	ty After: CLEAR	_	Artifacts:			<u>.</u>

### Description MH35E9 MH35E9 ### Description MH35E9 MH35E9 ### Description MH35E9 MH35E9 ### Description MH35E9 MH35E5 ### Description MH35E5 MH35E5 ### Description MH35E5 MH35E5 ### Description MH35E5			INORGANI	IC ANALYSIS DATA	SHEE	T	EPA S	AMPI	E NO.	
December Case Data Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5							M	H35E	;9	
Lab Sample ID: 1030768005 Solids: 74.2 Date Received: 11/03/2010 Date Receiv	ab Name	: ALS Labora	tory Group	Contract:]	EPW09	036				<u> </u>
Date Received: 11/03/2010 Solids: 74.2 Date Received: 11/03/2010 Date Received	ab Code	: DATAC C	ase No.: 4075	Mod. Ref.	No.:		SDG No.	.: <u>M</u>	H35E5	
CAS No. Analyte Concentration C Q M	(atrix:	Soil		Lab Sample	ID:	10307680	05			
CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 8000 P 7440-36-0 Antimony 7440-36-2 Arsenic 7440-39-3 Barium 7440-43-9 Barium 7440-43-9 Cadmium 7440-43-9 Cadmium 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-98-6 Iron 26000 P 7439-99-1 Lead 7439-99-1 Magnesium 3730 P 7440-02-0 Nickel 7440-02-0 Nickel 7440-02-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-22-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide None Sefore: BROWN Clarity Before: Texture: MEDIUM Texture: MEDIUM	Solids	: 74.2		Date Recei	ved:	11/03/20	10		 	
CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 8000 P 7440-36-0 Antimony 7440-36-2 Arsenic 7440-39-3 Barium 7440-43-9 Barium 7440-43-9 Cadmium 7440-43-9 Cadmium 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-98-6 Iron 26000 P 7439-99-1 Lead 7439-99-1 Magnesium 3730 P 7440-02-0 Nickel 7440-02-0 Nickel 7440-02-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-22-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide None Sefore: BROWN Clarity Before: Texture: MEDIUM Texture: MEDIUM										
7429-90-5 Aluminum 8000	oncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	.t): m	g/kg	٠			
7440-36-0 Antimony 7440-38-2 Arsenic 7440-39-3 Barium 7440-41-7 Beryllium 7440-43-9 Cadmium 7440-47-0 Calcium 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-89-6 Iron 26000 P 7439-99-1 Lead 7439-99-1 Magnesium 3730 P 7439-99-6 Mercury 7440-02-0 Nickel 7440-09-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN Clarity Before: Texture: MEDIUM Clarity After: CLEAR Artifacts:		CAS No.	Analyte	Concentration	С	Q		М		
7440-38-2 Arsenic 7440-39-3 Barium 7440-41-7 Beryllium 7440-43-9 Cadmium 7440-70-2 Calcium 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-89-6 Iron 26000 P 7439-92-1 Lead 7439-95-4 Magnesium 3730 P 7439-96-5 Manganese 7439-97-6 Mercury 7440-02-0 Nickel 7440-02-0 Silver 7440-22-4 Silver 7440-23-5 Sodium 7440-23-5 Sodium 7440-66-6 Zinc 57-12-5 Cyanide lor After: YELLOW Clarity After: CLEAR Artifacts: mments:		7429-90-5	Aluminum	8000				P		
7440-39-3 Barium 7440-41-7 Beryllium 7440-43-9 Cadmium 7440-70-2 Calcium 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-89-6 Iron 7439-95-1 Lead 7439-95-4 Magnesium 7439-95-6 Manganese 7439-97-6 Mercury 7440-02-0 Nickel 7440-22-4 Silver 7440-22-4 Silver 7440-23-5 Sodium 7440-28-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide Texture: MEDIUM Touth of the company of the com		7440-36-0	Antimony							
7440-41-7 Beryllium 7440-43-9 Cadmium 7440-470-2 Calcium 2050 P 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-89-6 Iron 26000 P 7439-92-1 Lead 7439-95-4 Magnesium 3730 P 7439-97-6 Mercury 7440-02-0 Nickel 7440-02-0 Nickel 7440-02-1 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-62-2 Vanadium 7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor After: YELLOW Clarity After: CLEAR Artifacts: mments:		7440-38-2	Arsenic							
7440-43-9		7440-39-3	Barium						•	
7440-70-2 Calcium 2050 P 7440-47-3 Chromium 7440-48-4 Cobalt 7440-50-8 Copper 7439-89-6 Iron 26000 P 7439-92-1 Lead 7439-95-4 Magnesium 3730 P 7439-96-5 Manganese 7439-97-6 Mercury 7440-02-0 Nickel 7440-02-0 Nickel 7440-02-0 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM Lor After: YELLOW Clarity After: CLEAR Artifacts:		7440-41-7	Beryllium				ĺ	\Box		
T440-47-3 Chromium		7440-43-9	Cadmium							
7440-48-4 Cobalt		7440-70-2	Calcium	2050				P		
7440-50-8 Copper 7439-89-6 Iron 26000 P 7439-92-1 Lead 7439-95-4 Magnesium 3730 P 7439-96-5 Manganese 7440-02-0 Nickel 7440-02-0 Nickel 7440-02-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-66-6 Zinc 7440-66-6 Zinc 57-12-5 Cyanide To Before: BROWN Clarity Before: Texture: MEDIUM Texture: MEDIUM Texture: MEDIUM Texture: MEDIUM Texture: MEDIUM		7440-47-3	Chromium							
7439-89-6		7440-48-4	Cobalt						•	
7439-92-1 Lead 7439-95-4 Magnesium 3730 P 7439-96-5 Manganese 7439-97-6 Mercury 7440-02-0 Nickel 7440-09-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide P Clarity Before: Texture: MEDIUM Interpretation of the state of t		7440-50-8	Copper					\neg		
7439-95-4 Magnesium 3730 P 7439-96-5 Manganese 7439-97-6 Mercury 7440-02-0 Nickel 7440-09-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide P 10r Before: BROWN : Clarity Before: Texture: MEDIUM Interpretation of the company of the c		7439-89-6	Iron	26000				P		
7439-96-5 Manganese		7439-92-1	Lead							
7439-97-6 Mercury 7440-02-0 Nickel 7440-09-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:	_	7439-95-4	Magnesium	3730				P		
7440-02-0 Nickel 7440-09-7 Potassium 375. J E P 7782-49-2 Selenium 7440-22-4 Silver 7440-23-5 Sodium 180. J E P 7440-28-0 Thallium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		7439-96-5	Manganese							
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		7439-97-6	Mercury					\neg		
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		7440-02-0	Nickel	· ·	ŀ			\neg		a
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		7440-09-7	Potassium	375.	J	E		P	674	U #"
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		7782-49-2	Selenium						_	
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:	·	7440-22-4	Silver					\neg		111
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:	*	7440-23-5	Sodium	180.	J	E		P	674	U'
7440-62-2 Vanadium 7440-66-6 Zinc 57-12-5 Cyanide lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		7440-28-0	Thallium					\neg	•	2/16
57-12-5 Cyanide lor Before: BROWN :: Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:			Vanadium					\neg		W-6
lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:	,	7440-66-6	Zinc							
lor Before: BROWN : Clarity Before: Texture: MEDIUM lor After: YELLOW Clarity After: CLEAR Artifacts:		57-12-5	Cyanide					\neg		
lor After: YELLOW Clarity After: CLEAR Artifacts:								\neg		
lor After: YELLOW Clarity After: CLEAR Artifacts:	·		,							
lor After: YELLOW Clarity After: CLEAR Artifacts:	nlor Bet	fore: BROWN	.∴ Clarit	v Before:		Textuu	e: MEDI	ш		
mments:										
	olor Aft	er: YELLOW	Clarit	y Aiter: CLEAR		_ Artiia	icts: _			
	ommente									
			alma is ostim	ated due to the	nreec	ance of i	nterfor	rone	· _	

EPA	SAMPLE	NO.
	MH35E9	

						MH35	E9
ab Name	: ALS Labora	tory Group	Contract:	EPW09	036		
ab Code	e: DATAC C	Case No.: 4075	5 Mod. Ref.	No.:		SDG No.:	MH35E5
atrix:	Soil		Lab Sample	ID:	10307680	05	
Solids	s: 74.2		Date Recei	ved: I	11/03/20	10	
				-			
ncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	ıt): mç	g/kg		
	CAS No.	Analyte	Concentration	С	Q	м	
	7429-90-5	Aluminum					1
	7440-36-0	Antimony	0.79	J	N	MS	1.3 05
	7440-38-2	Arsenic	14.2		DE	MS	1 M
	7440-39-3	Barium	79.3		*	MS	JM
	7440-41-7	Beryllium	0.75		Е	MS	I+ W
	7440-43-9	Cadmium	0.97		*NE	MS	7 2
	7440~70-2	Calcium					J
	7440-47-3	Chromium	6.9		D*	MS	X 1 31
	7440-48-4	Cobalt	11.0		DE	MS	I T
	7440-50-8	Copper	201.		DNE	MS	TI
	7439-89-6	Iron					1
	7439-92-1	Lead	187.			MS	1
	7439-95-4	Magnesium					1. 2.
	7439-96-5	Manganese	1160		D*	MS	II-14
	7439-97-6	Mercury] 317111
	7440-02-0	Nickel	5.9		DE	MS]」」 "
• •	7440-09-7	Potassium					
	7782-49-2	Selenium	0.45	J	DN	MS	3.400 0.67 US
,	7440-22-4	Silver	0.48	J	N	MS	0.6705
	7440-23-5	Sodium					1 .
	7440-28-0	Thallium	0.19	J	74.**	MS	0,670
	7440-62-2	Vanadium	36.1		D*	MS	I
	7440-66-6	Zinc	289.		D*E	MS] J %/
	57-12-5	Cyanide] 2/18
					······		1 .
] :
or Be	fore: ORANGE	Clarit	y Before:		Textu	re: MEDIUM	
lor Af	ter: <u>COLORLE</u>	SSClarit	y After: CLEAR		Artifa	acts:	
							•
mments:							
	reported w	alue is estima	ated due to the	DYESE	nce of i	ntarfaran	CO

EPA	SAMPLE	NO.
	MH35F0	

					<u> </u>		
ab Name	: ALS Labor	atory Group	Contract:	EPW090	36		
ab Code	: DATAC	Case No.: 4075	Mod. Ref.	йо.: _	SDG	No.: E	1H35E5
atrix:	Soil		Lab Sample	ID: 1	030768006	······	
Solids	: <u>57.8</u>		Date Recei	ved: <u>1</u>	1/03/2010		
oncentr	ation Units	g (ug/L, ug or	mg/kg dry weigh	t): mg,	/kg		
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum	11600			P	1
	7440-36-0	Antimony					1
	7440-38-2	Arsenic					1
	7440-39-3	Barium					
	7440-41-7	Beryllium]
•	7440-43-9	Cadmium]
	7440-70-2	Calcium	1810			P	_
	7440-47-3	Chromium] '
	7440-48-4	Cobalt					1 .
	7440-50-8	Copper					1
	7439-89-6	Iron	44300			P	1
	7439-92-1	Lead		,]
	7439-95-4	Magnesium	6090			P	
	7439-96-5	Manganese					1
	7439-97-6	Mercury					1
	7440-02-0	Nickel					865 l
	7440-09-7	Potassium	842.		E	P	865 L
	7782-49-2	Selenium			,		1
	7440-22-4	Silver					١
	7440-23-5	Sodium	58.1	J	E	P	18650
	7440-28-0	Thallium					24
	7440-62-2	Vanadium]
	7440~66~6	Zinc					
	57-12-5	Cyanide]
							•
			·			1	'
							• • • • • • • • • • • • • • • • • • • •
olor Be	fore: BROWN	Clari	ty Before:		_ Texture: h	ÆDIUM	<u>'s:</u>
olor Af	ter: YELLOW	Clarit	ty After: CLEAR	····	Artifacts	:	
omments						c.	
E: The	e reported '	value is estim	nated due to the	preser	nce or inte	rieren	ce.

EPA	SAMPLE	NO.
	MH35F0	

						MH35	FO
Lab Name	: ALS Labora	tory Group	Contract:	EPW09	036		
Lab Code	: DATAC C	ase No.: 4075	5 Mod. Ref.	No.;	SDG	No.: <u>1</u>	MH35E5
Matrix:	Soil		Lab Sample	ID:	1030768006		
% Solids	: 57.8		Date Recei	ved:	11/03/2010		
		, , , , , ,	, , , , ,		<i>t</i> r		
Concentr	ation Units	(ug/L, ug or	mg/kg dry weigh	E): M	g/kg	_,	-
	CAS No.	Analyte	Concentration	С	Q	М	}
	7429-90-5	Aluminum] an
	7440-36-0	Antimony	0.44	J	N	MS	1,7057
	7440-38-2	Arsenic	13.3		E	MS	7 01
	7440-39-3	Barium	123.		*	MS	J 72
	7440-41-7	Beryllium	0.66	J	E	MS	
	7440-43-9	Cadmium	0.78	J	*NE	MS	0.870 %
	7440-70-2	Calcium				1	٠, ٨
	7440-47-3	Chromium	4.7	:	*	MS	J M 3/9/11
	7440-48-4	Cobalt	5.4		E	MS	J M """
	7440-50-B	Copper	91.4		NE	MS]丁 枢
	7439-89-6	Iron					1 `
	7439-92-1	Lead	366.			MS	1
	7439-95-4	Magnesium					1
••	7439-96-5	Manganese	1440		D*	MS	TATE
	7439-97-6	Mercury				1	3/9/11
	7440-02-0	Nickel	3.9		E	MS	1 7 8
	7440-09-7	Potassium				1	
	7782-49-2	Selenium	0.51	J	N	MS	42001
	7440-22-4	Silver	1.2		N	MS	177
-	7440-23-5	Sodium				1	
	7440-28-0	Thallium	0.31	J		MS	0.87 U RA
	7440-62-2	Vanadium	25.8		*	MS	7-1-1-1
•	7440-66-6	Zinc	241.		*E	MS	7 12
	57-12-5	Cyanide		-		 	- 2/18/W
1		0,200				 	1
						İ] · ·
Color Bea	fore: BROWN	Clarit	y Before:		Texture: M	EDIUM	151
			y After: CLEAR				
					<u> </u>	-	
Comments:					-	_	
E: The	reported va	lue is estima	ted due to the	pres	ence of inter	feren	ce.
							

EPA	SAMPLE	NO.

					1				
ab Name	e: ALS Labor	atory Group	Contract:	EPW09	9036				
ab Code	DATAC DATAC	Case No.: 4075	5 Mod. Ref.	No.:		SDG 1	No.:]	MH35E5	
fatrix:	Soil	·	Lab Sample	ID:	10307680	07			
Solids	: 64.0		Date Recei	.ved:	11/03/20	10			
		,							
oncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	it): n	ng/kg				
	CAS No.	Analyte	Concentration	С	0		М	1	
	7429-90-5	Aluminum	5900		- -		P	-	
	7440-36-0	Antimony					╁╌╌	1	
	7440-38-2	Arsenic		 				†	
	7440-39-3	Barium					1	1	
	7440-41-7	Beryllium					 	1	
	7440-43-9	Cadmium					\vdash	1	
	7440-70-2	Calcium	934.				P	1	
:	7440-47-3	Chromium		l			 	1	
	7440-48-4	Cobalt		 			1:		
	7440-50-8	Copper					 	1	
	7439-89-6	Iron	71700		D		P	1	
	7439-92-1	Lead					 -	1	
	7439-95-4	Magnesium	2440				Р.	1 .	
-	7439-96-5	Manganese						f '	•
	7439-97-6	Mercury						1	
•	7440-02-0	Nickel						1	
***	7440-09-7	Potassium	1300		Е		P	J+ 781	74
	7782-49-2	Selenium						7	8
	7440-22-4	Silver					-	i	
	7440-23-5	Sodium	88.1	J	Е		P	721	1)
<i>∶</i> `	7440-28-0	Thallium	3012			**********	┞┈╧┈	10'	ر
	7440-62-2	Vanadium					-	1	7
·	7440~66-6	Zinc					 	1	
*	57-12-5	Cyanide	,				 	<u> </u>	
-							 _	}	
~ 7									
		<u> </u>		1			<u> </u>	1	
olor Be	Eore: BROWN	Clarity	y Before:		Textu	e: ME	DIUM		
olor Aft	er: YELLOW	Clarity	After: CLEAR		Artifa	cts:			
ommente:	•								
omments:	•	-1 da					_		
E: The	reported A	aiue is estima	ted due to the	pres	ence of i	nteri	reren	ce.	_
		· · · · · · · · · · · · · · · · · · ·					····		

EPA SAMPLE NO.

MH35F1	

Lids: 64.0 Date Received: 11/03/2010 entration Units (ug/L, ug or mg/kg dry weight): mg/kg CAS No.	de: DATA	łC	Case No.: <u>407</u>	55 Mod. Re	f. No.:	SDG	No.:	MH35E5
Tration Units (ug/L, ug or mg/kg dry weight): mg/kg CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 7440-36-0 Antimony 1.1 J N MS 7440-38-2 Arsenic 41.7 E MS 7440-39-3 Barium 424. * MS 7440-41-7 Beryllium 0.39 J E MS 7440-43-9 Cadmium 0.83 *NE MS 7440-47-0 Calcium 7440-47-3 Chromium 5.2 * MS 7440-47-3 Chromium 5.2 * MS 7440-48-4 Cobalt 3.8 E MS 7439-80-6 Iron 7439-92-1 Lead 394. MS 7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7440-02-0 Nickel 3.1 E MS 7440-02-0 Nickel 3.1 E MS 7440-02-1 Selenium 1.5 J N MS 7440-02-1 Sodium 7782-49-2 Selenium 1.5 J N MS 7440-28-0 Thallium 0.62 J MS 7440-66-6 Zinc 197. *E MS France MEDIUM Before: ORANGE Clarity Before: Texture: MEDIUM	: Soi	<u> </u>		Lab Sam	ple ID:	1030768007		
CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 7440-36-0 Antimony 1.1 J N MS 7440-38-2 Arsenic 41.7 E MS 7440-39-3 Barium 424. * MS 7440-41-7 Beryllium 0.39 J E MS 7440-43-9 Cadmium 0.83 *NE MS 7440-47-3 Chromium 5.2 * MS 7440-48-4 Cobalt 3.8 E MS 7440-50-8 Copper 42.7 NE MS 7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7439-97-6 Mercury 7440-02-0 Nickel 3.1 E MS 7440-02-0 Nickel 3.1 E MS 7440-22-4 Selenium 1.5 J N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.62 J N MS 7440-66-6 Zinc 197. *E MS Feturew:MEDIUM Before: ORANGE Clarity Before: Texturew:MEDIUM	ds: 64.0)		Date Red	ceived:	11/03/2010		
CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 7440-36-0 Antimony 1.1 J N MS 7440-38-2 Arsenic 41.7 E MS 7440-39-3 Barium 424. * MS 7440-41-7 Beryllium 0.39 J E MS 7440-43-9 Cadmium 0.83 *NE MS 7440-70-2 Calcium 7440-47-3 Chromium 5.2 * MS 7440-48-4 Cobalt 3.8 E MS 7440-50-8 Copper 42.7 NE MS 7439-92-1 Lead 394. MS 7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7439-97-6 Mercury 7440-02-0 Nickel 3.1 E MS 7440-02-0 Nickel 3.1 E MS 7440-22-4 Silver 2.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.62 J N MS 7440-66-6 Zinc 197. *E MS Feturew:MEDIUM Before: ORANGE Clarity Before: Texturew:MEDIUM					,		•	
7429-90-5 Aluminum 7440-36-0 Antimony 1.1 J N MS 7440-38-2 Arsenic 41.7 E MS 7440-39-3 Barium 424. * MS 7440-41-7 Beryllium 0.39 J E MS 7440-43-9 Cadmium 0.83 *NE MS 7440-47-2 Calcium 7440-47-3 Chromium 5.2 * MS 7440-48-4 Cobalt 3.8 E MS 7440-50-8 Copper 42.7 NE MS 7439-92-1 Lead 394. MS 7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7440-02-0 Nickel 3.1 E MS 7440-02-0 Nickel 3.1 E MS 7440-02-0 Selenium 1.5 J N MS 7440-02-4 Silver 2.4 N MS 7440-22-4 Silver 2.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.62 J MS 7440-66-6 Zinc 197. *E MS 7440-66-6 Zinc 197. *E MS 7440-66-6 Zinc 197. *E MS 7440-66-6 Clarity Before: Textures: MEDIUM	tration	Units	s (ug/L, ug o	mg/kg dry we	ight): m	g/ kg		
7440-36-0 Antimony 1.1 J N MS 7440-38-2 Arsenic 41.7 E MS 7440-39-3 Barium 424. * MS 7440-41-7 Beryllium 0.39 J E MS 7440-43-9 Cadmium 0.83 *NE MS 7440-70-2 Calcium - - MS 7440-47-3 Chromium 5.2 * MS 7440-48-4 Cobalt 3.8 E MS 7440-50-8 Copper 42.7 NE MS 7439-92-1 Lead 394. MS 7439-95-4 Magnesium - - 7439-97-6 Mercury - - 7440-02-0 Nickel 3.1 E MS 7440-02-0 Nickel 3.1 E MS 7440-22-4 Silver 2.4 N MS 7440-23-5 Sodium - -	CAS	No.	Analyte	Concentration	on C	Q	М	7
7440-39-3 Barium 424.	7429-	90-5	Aluminum	· · · · · · · · · · · · · · · · · · ·		···	<u>-</u>	1
7440-39-3 Barium 424.	7440-	36-0	Antimony	1.1	J	N	MS	1,6 V
7440-41-7 Beryllium 0.39 J E MS 0.78	7440-	38-2	Arsenic	41.7		E	MS	1 7
T440-41-7 Beryllium 0.39 J E MS 0.78 T440-43-9 Cadmium 0.83 *NE MS T440-70-2 Calcium	7440-	39-3	Barium	424.		*	MS	13 7
T440-43-9 Cadmium	7440-	41-7	Beryllium	0.39	J	E	MS	0.780
7440-70-2 Calcium 7440-47-3 Chromium 5.2 * MS 7440-48-4 Cobalt 3.8 E MS 7440-50-8 Copper 42.7 NE MS 7439-89-6 Iron 7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7440-02-0 Nickel 3.1 E MS 7440-09-7 Potassium 7782-49-2 Selenium 1.5 J N MS 7440-22-4 Silver 2.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.62 J MS 7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide Before: ORANGE Clarity Before: Texture*:MEDIUM	7440-	439	Cadmium	0.83		*NE	MS	- ·
7440-48-4 Cobalt 3.8 E MS 7440-50-8 Copper 42.7 NE MS 7439-89-6 Iron Iron MS 7439-92-1 Lead 394. MS 7439-95-4 Magnesium * MS 7439-96-5 Manganese 421. * MS 7440-02-0 Nickel 3.1 E MS 7440-09-7 Potassium * MS 3.7 7440-22-4 Silver 2.4 N MS 3.7 7440-23-5 Sodium * MS 3.7 7440-28-0 Thallium 0.62 J MS 4.7 7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide Clarity Before: Texture: MEDIUM	7440-	70-2	Calcium	1				
7440-50-8 Copper 42.7 NE MS 7439-89-6 Iron 1 1 7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7440-02-0 Nickel 3.1 E MS 7440-09-7 Potassium 7782-49-2 Selenium 1.5 J N MS 3.7 7440-22-4 Silver 2.4 N MS 3.7 7440-23-5 Sodium MS 7.7 7440-62-2 Vanadium 40.7 * MS J 7440-66-6 Zinc 197. *E MS J 57-12-5 Cyanide Texture MEDIUM	7440-	47-3	Chromium	5.2		*	MS	1
7439-89-6	7440-	48-4	Cobalt	3.8		E	MS	一十 加
7439-92-1 Lead 394. MS 7439-95-4 Magnesium 7439-96-5 Manganese 421. * MS 7439-97-6 Mercury 7440-02-0 Nickel 3.1 E MS 7440-09-7 Potassium N MS 7440-22-4 Selenium 1.5 J N MS J+ 7440-23-5 Sodium MS O.72 7440-62-2 Vanadium 40.7 * MS D.73 7440-66-6 Zinc 197. *E MS D.73 57-12-5 Cyanide Texture MEDIUM	7440-	50-8	Copper	42,7		NE	MS	计为为
7439-95-4 Magnesium * MS 7439-96-5 Manganese 421. * MS 7439-97-6 Mercury * MS 7440-02-0 Nickel 3.1 E MS 7440-09-7 Potassium 1.5 J N MS 7440-22-4 Selenium 1.5 J N MS J+ 7440-23-5 Sodium Sodium MS O.78 7440-62-2 Vanadium 40.7 * MS D.78 7440-66-6 Zinc 197. *E MS D.78 57-12-5 Cyanide Texture MEDIUM	7439-	89-6	Iron					7
7439-96-5 Manganese 421.	7439-	92-1	Lead	394.			MS	7
7439-97-6 Mercury 7440-02-0 Nickel 3.1 E MS 7440-09-7 Potassium 1.5 J N MS 7782-49-2 Selenium 1.5 J N MS 7440-22-4 Silver 2.4 N MS J+ 7440-23-5 Sodium Sodium MS O-73 7440-66-0 Thallium 0.62 J MS O-73 7440-66-6 Zinc 197. *E MS J 57-12-5 Cyanide Texture MEDIUM	7439-	95-4	Magnesium			•	<u> </u>	ر ا
7440-02-0 Nickel 3.1 E MS T 7440-09-7 Potassium 1.5 J N MS 3.7 782-49-2 Selenium 1.5 J N MS 3.7 7440-22-4 Silver 2.4 N MS J+ 7440-23-5 Sodium Sodium MS 0.73 7440-62-0 Thallium 0.62 J MS 0.73 7440-66-6 Zinc 197. *E MS J 57-12-5 Cyanide 197. *E MS J Before: ORANGE Clarity Before: Texture*:MEDIUM	7439-	96-5	Manganese	421.		*	MS	الترسية ا
7440-02-0 Nickel 3.1 E MS T 7440-09-7 Potassium 1.5 J N MS T 7420-22-4 Silver 2.4 N MS T+ 7440-23-5 Sodium 0.62 J MS O.73 7440-28-0 Thallium 0.62 J MS O.73 7440-66-2 Vanadium 40.7 *E MS 57-12-5 Cyanide 197. *E MS Before: ORANGE Clarity Before: Texture*:MEDIUM	7439~	976	Mercury	<u> </u>				1 ,
7440-09-7 Potassium 3.7 7782-49-2 Selenium 1.5 J N MS 7440-22-4 Silver 2.4 N MS J+ 7440-23-5 Sodium 0.62 J MS O.73 7440-28-0 Thallium 0.62 J MS O.73 7440-62-2 Vanadium 40.7 *E MS 57-12-5 Cyanide 197. *E MS 57-12-5 Cyanide Texture<:MEDIUM	7440-	02-0		3.1		E ·	MS	丁 🌂
7440-22-4 Silver 2.4 N MS J+	7440-	09-7	Potassium					7
7440-23-5 Sodium 7440-28-0 Thallium 0.62 J MS 7440-62-2 Vanadium 40.7 * MS 7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide S Texture MEDIUM Before: ORANGE Clarity Before:	7782-	49-2	Selenium	1.5	J	N	MS	3.70 J+
7440-23-5 Sodium 7440-28-0 Thallium 0.62 J MS 7440-62-2 Vanadium 40.7 * MS 7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide S Texture MEDIUM Before: ORANGE Clarity Before:	7440-	22-4	Silver	2.4		N	MS	15+ 3
7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide Before: ORANGE Clarity Before: Texture MEDIUM	7440-	235	Sodium	***************************************				7 '
7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide Before: ORANGE Clarity Before: Texture MEDIUM	—		Thallium	0.62	J		MS	0.78
7440-66-6 Zinc 197. *E MS 57-12-5 Cyanide Before: ORANGE Clarity Before: Texture *MEDIUM		****		 		* _		1 I
Before: ORANGE Clarity Before: Texture **MEDIUM			}	- 	1 1	*E	MS	17 20
Before: ORANGE Clarity Before: Texture **MEDIUM	57-12-	-5					\dashv	1 2
Before: ORANGE Clarity Before: Texture **MEDIUM				,				1 7
								1
			<u> </u>					J .
	Before:	ORANGI	E Clari	ty Before:		Texture:	MEDIUM	
After RPOWN Clarity After CIPAD Artifocts								
Arter. Brown Clarity Arter. Chear Artifacts.	Arter: B	ROWN	Clari	ty After: CLE	AR	_ Artifacts	·	
ts:				•				
rs: The reported value is estimated due to the presence of interference.							_	

EPA	SAMPLE	NO.
	MH35F2	

ab Naz	ne: ALS Labor	atory Group	Contract:	Contract: EPW09036					
ab Coc	de: DATAC	Case No.: 40755	Mod. Ref.	Mod. Ref. No.: SDG No.: MH35E5					
[atrix:	Soil		Lab Sample	ID:	1030768008				
Solid	ls: 74.0		Date Recei	ved:	11/03/2010				
									
oncent	ration Units	(ug/L, ug or	mg/kg dry weigh	t): m	g/kg				
	CAS No.	Analyte	Concentration	С	Q	М			
	7429-90-5	Aluminum	7040			P			
	7440-36-0	Antimony							
	7440-38-2	Arsenic							
	7440-39-3	Barium							
	7440-41-7	Beryllium							
	7440-43-9	Cadmium							
	7440-70-2	Calcium	1040			P			
	7440-47-3	Chromium							
	7440-48-4	Cobalt			-1	·			
	7440-50-8	Copper							
	7439-89-6	Iron	62200		D	P			
	7439-92-1	Lead							
	7439-95-4	Magnesium	3760			P	_	_	
	7439-96-5	Manganese							
	7439-97-6	Mercury							
	7440-02-0	Nickel	······································		<u>+</u>		. ہے	1	
	7440-09-7	Potassium	1090		E	P	J+		
	7782-49-2	Selenium							
	7440-22-4	Silver					676		
	7440-23-5	Sodium	75.6	J	E	P	676	U	
	7440-28-0	Thallium						2/1	
	7440-62-2	Vanadium						17 *	
-	7440-66-6	Zinc							
	57-12-5	Cyanide							
•									
lor B	efore: BROWN	Clarity	Before:		Texture: ME	DIUM			
lor A	fter: YELLOW	Clarity	After: CLEAR		Artifacts:				
			 	,					
mment: E: Th		alue is estima	ted due to the	pres	ence of interf	eren	ce.		
								_	

• ;;

USEPA - CLP 1B-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MH35F2

ab Name	e: ALS Labor	atory Group	Contract:	EPW0	9036		···
ab Code	e: DATAC	Case No.: <u>407</u>	Mod. Ref.	No.:	SDG	No.: [4H35E5
atrix:	Soil		Lab Sample	ID:	1030768008		
Solids	5: 74.0		Date Recei	ved:	11/03/2010		
					_		
oncenta	cation Units	(ug/L, ug or	mg/kg dry weigh	it):r	ag/kg		
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum				1	رير ا
	7440-36-0	Antimony	0.56	J	N	MS	当地
	7440-38-2	Arsenic	35.3		Е	MS	1 1
	7440-39-3	Barium	342.	Ì	*	MS	J
	7440-41-7	Beryllium	0.38	J	E	MS	0.680
	7440-43-9	Cadmium	1.4	<u> </u>	*NE	MS	J 11
	7440-70-2	Calcium				<u> </u>	
	7440-47-3	Chromium'	5.7		*	MS	7
	7440-48-4	Cobalt	4.8		E	MS	T
	7440-50-8	Copper	98.6		NE	MS	丁龙
	7439-89-6	Iron					~
	7439-92-1	Lead	306.			MS	1
	7439-95-4	Magnesium					ر, ا
	7439-96-5	Manganese	580.		*	MS	T 19
	7439-97-6	Mercury				 	3.40 m 2 3+ n
	7440-02-0	Nickel	3.4		E	MS	- 12
	7440-09-7	Potassium				 	
	7782-49-2	Selenium	1.0	J	N .	MS	3.41) 20 7
	7440-22-4	Silver	1.4	_	N	MS	T+ E
	7440~23-5	Sodium				1	-3
	7440-28-0	Thallium	0.41	J	•	MS	0680
	7440-62-2	Vanadium	42.3		*	MS	0.68 U 3 2/18/
	7440-66-6	Zinc	360.		*E	MS	7 262
	57-12-5	Cyanide	300.			1.10	- alal
	37 12 3	Суантае					الظالة
lor Be	fore: BROWN	Clarit	y Before:		Texture: M	EDIUM	
			y After: CLEAR				
			<u> </u>				
mments						_	
E: The	e reported v	alue is estim	ated due to the	pres	ence of inter	feren	ce.

1

EPA	SAMPLE	NO.
EPA	SAMPLE	NO.

o Cod	e: DATAC	Case No.: 407	55 Mod. Ref.	No.:	SDG	No.:	MH35E5
trix:					1030768009	•	
	s: 60.8		-			<u></u>	
OTIU:	s: <u>00.8</u>		Date Recei	veu:	11/03/2010	,	
ncent:	ration Units	(ug/L, ug or	mg/kg dry weigh	nt):r	na/ka		
	CAS No.	Analyte	Concentration	С		М	7
	7429-90-5	Aluminum			<u> </u>	_	-[
	7440-36-0	Antimony	4890			<u>P</u>	
•	7440-38-2	Arsenic					-
	7440-39-3	Barium				-	-
	7440-41-7	Beryllium		<u> </u>		┿	┨
	7440~43-9	Cadmium					-
	7440-70-2	Calcium	791.			P	822 0
	7440-47-3	Chromium		· ·			1 0/1/2
	7440-48-4	Cobalt					1
	7440-50-8	Copper		<u> </u>			1
	7439-89-6	Iron	88900		D	P	1
	7439-92-1	Lead			-		1
	7439-95-4	Magnesium	2180			P	1
	7439-96-5	Manganese					7
	7439-97-6	Mercury					1
	7440-02-0	Nickel					2
	7440-09-7	Potassium	1200		E	P	5+ 76 822 0 7 2/18/
	7782-49-2	Selenium]
	7440-22-4	Silver]
	7440-23-5	Sodium	76.1	Ĵ	E	P	1822 0 '
	7440-28-0	Thallium	· · · · · · · · · · · · · · · · · · ·				2/18
	7440-62-2	Vanadium				ļ	1 21101
	7440-66-6	Zinc					
	57-12-5	Cyanide					_
	<u> </u>						
		<u> </u>				<u> </u>	j
or Be	efore: BROWN	Clarit	y Before:	· 41	Texture: N	EDIUM	
or Af	ter: YELLOW	Clarit	y After: CLEAR		Artifacts	:	
			- · · · · ·				
ments							
: The	e reported v	alue is estim	ated due to the	pres	ence of inter	rferen	ce.

EPA SAMPLE NO.

Lab Name:	ALS Laboratory Group	Contract: EPW09036
Lab Code:	DATAC Case No.: 40755	Mod. Ref. No.: SDG No.: MH35E5
Matrix:	Soil	Lab Sample ID: 1030768009
% Solids:	60.8	Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	С	Q	М	
7429-90-5	Aluminum					-
7440-36-0	Antimony	0.87	J	N	MS	1.6 UT 1 0.82 U 14 0.82 U 14
7440-38-2	Arsenic	57.0		E	MS	TM
7440-39-3	Barium	317.		*	MS	7 0-
7440-41-7	Beryllium	0.41	J	E	MS	0.820 8
7440-43-9	Cadmium	0.52	J	*NE	MS	0.820
7440-70-2	Calcium					. 11-KA.
7440-47-3	Chromium	4.8		*	MS	J- 317 11
7440-48-4	Cobalt	3.6		E	MS	T 1/4
7440-50-8	Copper	41.8		NE	MS	了 化
7439-89-6	Iron					. ~
7439-92-1	Lead	541.			MS	
7439-95-4	Magnesium	•				LA
7439-96-5	Manganese	436.		*	MS	3/9/11
7439-97-6	Mercury					
7440-02-0	Nickel	3.2		E	MS	J 74
7440-09-7	Potassium					بر سد
7782-49-2	Selenium	1.4	J	N	MS	4+++++* 5 78
7440-22-4	Silver	2.1		N	MS	J+ W
7440-23-5	Sodium					_
7440-28-0	Thallium	0.75	J		MS	0.82 0 76
7440-62-2	Vanadium	48.6		*	MS	I 1/2/10
7440-66-6	Zinc	153.		*E	MS	3 m
57-12-5	Cyanide	•				2/18/11
				·		

Color	Before:	ORANGE	Clarity	Before:	123	Texture: MEDIUM	
Color	After: 0	COLORLESS	Clarity	After:	CLEAR	Artifacts:	
Comme							
<u>E:</u>	The repo	rted value	is estimat	ed due	to the	presence of interference.	
							

EPA	SAMPLE	NO.
	MH35F4	

						MH35	F4 	
Lab Name	e: ALS Labor	atory Group	Contract:	EPW090	36			·
Lab Code	e: DATAC	Case No.: 407	55 Mod. Ref.	No.:	S	DG No.: N	ин35£5	_
Matrix:	Soil		Lab Sample	ID: 2	1030768010)		
% Solids	s: 70.0		Date Recei	ved: [11/03/2010)		
Concenti	ration Units	(ug/L, ug or	mg/kg dry weigh	it); mg	g/kg			:
	CAS No.	Analyte	Concentration	С	Q	М] :	
	7429-90-5	Aluminum	5540			P	i	
	7440-36-0	Antimony					1	
•	7440-38-2	Arsenic					1.	
	7440-39-3	Barium					1	
	7440-41-7	Beryllium					1	
	7440-43-9	Cadmium						
	7440-70-2	Calcium	735.			Р]	
	7440-47-3	Chromium					1	
	7440-48-4	Cobalt					1	
	7440-50-8	Copper					1	
	7439-89-6	Iron	56500			P	1	
	7439-92-1	Lead					1	
	7439-95-4	Magnesium	2810			P	1	
	7439-96-5	Manganese					İ	
	7439-97-6	Mercury			***************************************	<u> </u>		
	7440-02-0	Nickel						41
	7440-09-7	Potassium	127,0		E	P	7+	p
	7782-49-2	Selenium					1 -	
	7440-22-4	Silver				i		
	7440-23-5	Sodium	68.7	3	E	P	714	U M
	7440-28-0	Thallium	•			1	5+ 714	al al
	7440-62-2	Vanadium	:				i	4181
	7440~66~6	Zinc					1	
	57-12-5	Cyanide	,				1	
							1	
	I		. /				1	
	L	. !	· · · · · · · · · · · · · · · · · · ·	·			,	
Color Be	fore: BROWN	Clari	ty Before:		_ Texture	: MEDIUM		
Color Af	ter: YELLOW		ty After: CLEAR					_
7								
Comments								
E: The	e reported v	alue is estir	nated due to the	prese	nce of in	terreren	ce.	_
								_

EPA	SAMPLE	NO.
	MH35F4	

						MH35	P.4	
Name	: ALS Labora	atory Group	Contract:	EPW09	036			
Code	: DATAC (Case No.: 4075	5 Mod. Ref.	No.:	SDG 1	۱o.: <u>ا</u>	MH35E5	
ix:	Soil		Lab Sample	ID:	1030768010			
lids	: 70.0	•	Date Recei	ved:	11/03/2010			
		_	·					•
entr	ation Units	(ug/L, ug or	mg/kg dry weigh	it): m	g/kg			
i	CAS No.	Analyte	Concentration	С	Q	М	1	
	7429-90-5	Aluminum				 	1	
	7440-36-0	Antimony	0.88	J	N	MS	1.40	ンゴブ
	7440-38-2	Arsenic	34.0		E	MS	14``	11
	7440-39-3	Barium	422.		*	MS	17	K
ļ	7440-41-7	Beryllium	0.38	J	E	MS		
	7440-43-9	Cadmium	0.47	J	*NE	MS	0.71	1) 3
	7440-70-2	Calcium					1	
	7440-47-3	Chromium	5.9		*	MS	117	-M
	7440-48-4	Cobalt	3.1		E	MS	Ī	K
	7440-50-8	Copper	29.8		NE	MS	1 3	K
	7439-89-6	Iron					1	
	7439-92-1	Lead	361.			MS]	
	7439-95-4	Magnesium					1	
	7439-96-5	Manganese	311.		*	MS	1.	31
	7439-97-6	Mercury]	
	7440-02-0	Nickel	2.8		E	MS	」	The
	7440-09-7	Potassium	-]	
	7782-49-2	Selenium	1.3	J	N	MS	3,6 1+	<i>₩</i>
	7440-22-4	Silver	1.9		N	MS	T +	7
	7440-23-5	Sodium						
	7440-28-0	Thallium	. 0.69	J		MS	0.71	U
	7440-62-2	Vanadium	. 34.6		*	MS	1-3	2/18
	7440-66-6	Zinc	. 136.		*E	MS	II	
ŀ	57-12-5	Cyanide	,			ļ		2/18
ŀ							.	
L		ļ <u>.</u>		L. L				
r Bol	Fore OPANCE	Classit	Poiforos		Texture: M	MITTIS		
. DEI	LOTE. OKANGE	Clarit	A Deroie.		_ revente.	7.7.1 U.T		
. Aft	ter: COLORLE	SS Clarit	y After: CLEAR		Artifacts:			
					_			
ents:		•						
The	reported v	alue is estim	ated due to the	prese	ence of inter	feren	ce.	

EPA	SAMPLE	NO.
	MH35F5	

trix:	Soil		Lab Sample	ID: <u>1</u>	030768011		
Solids	: <u>77.7</u>		Date Recei	ved: <u>1</u>	1/03/2010		
ncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t): mg	/kg		
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum	5240			P	
	7440-36-0	Antimony					
	7440-38-2	Arsenic					
	7440-39-3	Barium					
	7440-41-7	Beryllium					
	7440-43-9	Cadmium					4111
	7440-70-2	Calcium	230.	J		P	644 U
•	7440-47-3	Chromium					
	7440-48-4	Cobalt					*
	7440-50-8	Copper					
	7439-89-6	Iron	44400			P	
	7439-92-1	Lead					
-	7439-95-4	Magnesium · ·	. 2570			P	
-	7439-96-5	Manganese					
	7439-97-6	Mercury					
	7440-02-0	Nickel					72-
	7440-09-7	Potassium	1230		E	P	J+ 7
•	7782-49-2	Selenium					-
	7440-22-4	Silver					
	7440-23-5	Sodium	69.8	J	E	P	644 U
	7440-28-0	Thallium					1
	7440-62-2	Vanadium .					644 U 2/18
	7440-66-6	Zinc					ı.
	57-12-5	Cyanide .		 			
	37-12-3	Cyaniue .					
		· · · · · · · · · · · · · · · · · · ·			····		٠
				<u> </u>		<u> </u>	İ
or Be	fore: BROWN	Clarif	y Before:		_ Texture: M	EDIUM	
or Af	ter: YELLOW	Clarit	y After: CLEAR		_ Artifacts:		

EPA	SAMPLE	NO.
	MUSERE	

CA 7429- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7440- 7440- 7440-	7 2AC C 1 7 2 Units 4S No90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Case No.: 407	Contract: 1 55 Mod. Ref. Lab Sample Date Recei mg/kg dry weigh Concentration 1.2 54.8 582. 0.41 2.6	No.: _ ID: <u>1</u> ved: <u>1</u>	SDG .030768011 .1/03/2010 /kg Q N E	M MS MS	MH35E5
Matrix: Soi % Solids: 77. Concentration CA 7429 7440 7440 7440 7440 7440 7440 7439 7439 7439 7439 7439 7440 7782 7440 7782	7 2 Units 2 No90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	(ug/L, ug or Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium	Lab Sample Date Recei mg/kg dry weigh Concentration 1.2 54.8 582. 0.41	ID: 1 ved: 1 t): mg	.030768011 .1/03/2010 /kg Q N E	M Ms	MH35E5
% Solids: 77. Concentration CA 7429- 7440- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	7 Dunits S No. -90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium	Lab Sample Date Recei mg/kg dry weigh Concentration 1.2 54.8 582. 0.41	ID: 1 ved: 1 t): mg	.030768011 .1/03/2010 /kg Q N E	M Ms	1,3 05
CA 7429-7440-7440-7440-7440-7439-7439-7440-7440-7440-7440-7440-7440-7440-744	No90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium	mg/kg dry weigh Concentration 1.2 54.8 582. 0.41	t): mg	/kg Q N E	MS	1,3 05
CA 7429- 7440- 7440- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	AS No90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium	mg/kg dry weigh Concentration 1.2 54.8 582. 0.41	t): mg	/kg Q N E	MS	1,3 05
CA 7429- 7440- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	AS No90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium	1.2 54.8 582. 0.41	С	Q N E	MS	1,3 05
7429- 7440- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	-90-5 -36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Aluminum Antimony Arsenic Barium Beryllium Cadmium	1.2 54.8 582. 0.41		N E	MS	1,3 05
7440- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440- 7782- 7440-	-36-0 -38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Antimony Arsenic Barium Beryllium Cadmium	54.8 582. 0.41	J	E		1,3 05
7440- 7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7782- 7440- 7782- 7440-	-38-2 -39-3 -41-7 -43-9 -70-2 -47-3	Arsenic Barium Beryllium Cadmium	54.8 582. 0.41	J	E		1,3 05
7440- 7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7782- 7440- 7782-	-39-3 -41-7 -43-9 -70-2 -47-3	Barium Beryllium Cadmium	582. 0.41			MS	
7440- 7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7782- 7440- 7782-	-41-7 -43-9 -70-2 -47-3	Beryllium Cadmium	0.41				17 82
7440- 7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	-43-9 -70-2 -47-3	Cadmium			*	MS	J
7440- 7440- 7440- 7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	-70 - 2 -47 - 3		1 26 1	J	E	MS	0.640
7440- 7440- 7439- 7439- 7439- 7439- 7439- 7440- 7740- 7782- 7440-	-47-3	Calcium	4.0		*NE	MS	J W
7440- 7439- 7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440-							سير _ ا
7440- 7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440-	40 4	Chromium	4.5 _		*	MS	Ju
7439- 7439- 7439- 7439- 7440- 7440- 7782- 7440-		Cobalt	4.0		E	MS	15 %
7439- 7439- 7439- 7440- 7440- 7782- 7440-	-50-8	Copper .	40.4		NE NE	MS	J T ^
7439- 7439- 7439- 7440- 7440- 7782- 7440-	-89~6	Iron					
7439- 7439- 7440- 7440- 7782- 7440-	-92 - 1	Lead	598.			MS	<u>]</u> `
7439- 7440- 7440- 7782- 7440-	-95-4	Magnesium.					1
7440- 7440- 7782- 7440-	-96-5	Manganese	304.		*	MS	1 37
7440- 7782- 7440-	-97-6	Mercury					
7782- 7440-	-02-0	Nickel	3.3		E	MS	15 "
7440-	-09-7	Potassium					ي ا
	-49-2	Selenium	2.0	J	N	MS	3.20
7440-	-22-4	Silver	3.6		N	MS	17+ 2
	-23-5	Sodium					
7440-	-28-0	Thallium	0.59	J		MS	0.64 0
7440-	-62-2	Vanadium	36.4		*	MS	I
7440-		Zinc	604.		*E	MS] 丁元
57-12	<u>?-5</u>	Cyanide				<u> </u>	7/18/
			· .				'
Color Before:	BROWN	Glarit	ty Before:		Texture: N	ÆDIUM	
			ty After: CLEAR		-		
-			_		_		
Comments:							
E: The repo		alue is estim	ated due to the	prese	nce of inte	rferen	ce.

EPA SAMPLE NO.

MH35F6	-

		Case No.: 407	55 Mod. Ref.	No.:	SDG	No.: 1	MH35E5
Matrix;	Soil		Lab Sample	: ID: <u>1</u>	030768012		
% Solid	s: <u>67.5</u>		Date Recei	ved: <u>1</u>	1/03/2010		
Concent	ration Units	s (ug/L, ug or	mg/kg dry weigh	nt): mg	/kg		
	CAS No.	Analyte	Concentration	С	Q	М]
	7429-90-5	Aluminum	8220			P	4
	7440-36-0	Antimony		 	***************************************	 	1
	7440-38-2	Arsenic					i .
	7440-39-3	Barium	1			<u> </u>	4
	7440-41-7	Beryllium			· · · · · · · · · · · · · · · · · · ·		4
	7440-43-9	Cadmium					
	7440-70-2	Calcium	1040		···· · · · · · · · · · · · · · · · · ·	P	†
	7440-47-3	Chromium				<u> </u>	
	7440-48-4	Cobalt				···	1
· .	7440-50-8	Copper					†
	7439-89-6	Iron	94600		D	P	1
	7439-92-1	Lead	-				1
	7439-95-4	Magnesium	4550			P]
	7439-96-5	Manganese			· · · · · · · · · · · · · · · · · · ·		1
•	7439-97-6	Mercury					1
	7440-02-0	Nickel					
	7440-09-7	Potassium	1060		E	P	J+ **
	7782-49-2	Selenium					J+ # 7410 %
·	7440-22-4	Silver					1
	7440-23-5	Sodium	80.6	J	Е	P	74103
	7440-28-0	Thallium					2/.01
	7440-62-2	Vanadium					41°11
	7440-66-6	Zinc			——————————————————————————————————————		
	57-12-5	Cyanide					
					<u>.</u> .		
olor Be	efore: BROWN	<u>∵∂</u> Clarit	y Before:		Texture: 1	MEDIUM	•
olor Af	ter: <u>YELLOW</u>		y After: CLEAR				
comments	:		ated due to the		•		

EPA SAMPLE NO.

Cas No. Analyte Concentration C Q M	o Code	: DATAC C	Case No.: 407	55 Mod. Ref.	No.:	SDG	No.: 1	4H35E5
Cas No. Analyte Concentration C Q M					_			
CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 7440-36-0 Antimony 0.38 J N MS 7440-38-2 Arsenic 34.3 E MS 7440-39-3 Barium 121. * MS 7440-41-7 Beryllium 0.41 J E MS 7440-47-9 Calcium 7440-47-3 Chromium 6.6 * MS 7440-48-4 Cobalt 5.5 E MS 7440-50-8 Copper 55.2 NE MS 7439-92-1 Lead 334. MS 7439-95-4 Magnesium 7439-95-6 Manganese 831. D* MS 7439-95-6 Manganese 831. D* MS 7440-02-0 Nickel 3.9 E MS 7440-02-0 Nickel 3.9 E MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 74410-66-6 Zinc 186. *E MS 74411-66-6 Zinc 186.	trix:	Soil		Lab Sample	ID:	1030768012		
CAS No. Analyte Concentration C Q M 7429-90-5 Aluminum 7440-36-0 Antimony 0.38 J N MS 7440-38-2 Arsenic 34.3 E MS 7440-39-3 Barium 121. * MS 7440-41-7 Beryllium 0.41 J E MS 7440-47-9 Calcium 7440-47-3 Chromium 6.6 * MS 7440-48-4 Cobalt 5.5 E MS 7440-50-8 Copper 55.2 NE MS 7439-92-1 Lead 334. MS 7439-95-4 Magnesium 7439-95-6 Manganese 831. D* MS 7439-95-6 Manganese 831. D* MS 7440-02-0 Nickel 3.9 E MS 7440-02-0 Nickel 3.9 E MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 74410-66-6 Zinc 186. *E MS 74411-66-6 Zinc 186.	Solids	: 67.5		Date Recei	ved: 1	11/03/2010		
CAS No. Analyte Concentration C Q M			•		· <u>-</u>			
CAS No. Analyte Concentration C Q M		ntion Moite	//T	/lid		. /)- ~	•	•
7429-90-5 Aluminum 7440-36-0 Antimony 7440-38-2 Arsenic 34.3 E MS 7440-39-3 Barium 121.	ncencr	acton units	(ug/L, ug or	mg/kg dry wergr	ic): nic	17 kg		
7440-36-0 Antimony 0.38 J N MS 7440-38-2 Arsenic 34.3 E MS 7440-39-3 Barium 121. * MS 7440-41-7 Beryllium 0.41 J E MS 7440-43-9 Cadmium 0.51 J *NE MS 0.74 L 0.7440-70-2 Calcium 7440-47-3 Chromium 6.6 * MS 7440-48-4 Cobalt 5.5 E MS 7440-50-8 Copper 55.2 NE MS 7439-89-6 Iron 7439-92-1 Lead 334. MS 7439-95-4 Magnesium 7439-96-5 Manganese 831. D* MS 7439-97-6 Mercury 7440-02-0 Nickel 3.9 E MS 7440-02-0 Nickel 3.9 E MS 7440-02-0 Nickel 3.9 E MS 7440-22-4 Silver 1.4 N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0. Thallium 0.44 J MS 7440-66-6 Zinc 1B6. *E MS J MS Zince 1B6. *E MS J MS Zince 1B6. *E MS J MS Zince 1B6. *E MS J MS Zince 1B6. *E MS J MS Zince 1B6. *E MS J MS Zince 1B6. *E MS J MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6. *E MS Zince 1B6.		CAS No.	Analyte	Concentration	С	Q	М	
7440-38-2 Arsenic 34.3 E MS 7440-39-3 Barium 121.		7429-90-5	Aluminum					1
7440-38-2 Arsenic 34.3 E MS T 440-39-3 Barium 121. * MS		7440-36-0	Antimony	0.38	J	Ņ	MS	150
7440-41-7 Beryllium 0.41 J E MS 0.744 L 7440-43-9 Cadmium 0.51 J *NE MS 0.744 L 7440-470-2 Calcium		7440-38-2	Arsenic	34.3		E	MS	T
7440-41-7 Beryllium 0.41 J E MS 0.744 L 7440-43-9 Cadmium 0.51 J *NE MS 0.744 L 7440-470-2 Calcium		7440-39-3	Barium	121,		¥	MS	17 8
T440-43-9 Cadmium		7440-41-7		0.41	J	E	MS	10,74 L
T440-70-2 Calcium		7440-43-9		· · · · · · · · · · · · · · · · · · ·	J	*NE		12.74 L
7440-47-3 Chromium 6.6		7440-70-2	Calcium					
7440-48-4			Chromium	6.6		*	MS	1-1
7440-50-8 Copper 55.2 NE MS 7439-89-6 Iron 7439-92-1 Lead 334. MS 7439-95-4 Magnesium 7439-97-6 Mercury 7440-02-0 Nickel 3.9 E MS 7440-09-7 Potassium 7782-49-2 Selenium 0.81 J N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.44 J MS 7440-28-0 Thallium 0.44 J MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 757-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts: ments:						E	MS	7 11
7439-89-6		· · · · · · · · · · · · · · · · · · ·				···		7 1/
7439-92-1 Lead 334. MS 7439-95-4 Magnesium 7439-96-5 Manganese 831. D* MS 7439-97-6 Mercury 7440-02-0 Nickel 3.9 E MS 7440-09-7 Potassium 7782-49-2 Selenium 0.81 J N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.44 J MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 7740-66-6 Z								~
7439-95-4 Magnesium 7439-96-5 Manganese 831. D* MS 7439-97-6 Mercury 7440-02-0 Nickel 3.9 E MS 7440-09-7 Potassium 7782-49-2 Selenium 0.81 J N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.44 J MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 186. *E MS 757-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts:				334.			MS	1
Tay-96-5 Manganese 831. D* MS Tay		w					1 .	
7439-97-6 Mercury 7440-02-0 Nickel 3.9 E MS 7440-09-7 Potassium 7782-49-2 Selenium 0.81 J N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.44 J MS 7440-62-2 Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS 757-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts:		 		831.		D*	MS	1
7440-02-0 Nickel 3.9 E MS 7 440-09-7 Potassium 7782-49-2 Selenium 0.81 J N MS 3-7 to 7440-22-4 Silver 1.4 N MS T+ 7440-23-5 Sodium 7440-28-0 Thallium 0.44 J MS 0.74 MS 7440-62-2 Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS T MS 57-12-5 Cyanide ** Texture: MEDIUM* or After: COLORLESS Clarity After: CLEAR Artifacts: ** ments:	-						1	~ -
7440-09-7 Potassium 7782-49-2 Selenium 0.81 J N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0. Thallium 0.44 J MS 7440-62-2. Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS 7440-66-6 Zinc 57-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts:		***		3.9		F.	MS	丁 加
7782-49-2 Selenium 0.81 J N MS 7440-22-4 Silver 1.4 N MS 7440-23-5 Sodium 7440-28-0 Thallium 0.44 J MS 7440-62-2 Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS 57-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts:			}				 	~
7440-22-4 Silver 1.4 N MS T+ 7440-23-5 Sodium 7440-28-0. Thallium 0.44 J MS 0.74 MS 7440-62-2. Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS 57-12-5 Cyanide			· · · · · · · · · · · · · · · · · · ·	0.81	Ţ	N	MS	374
7440-23-5 Sodium 7440-28-0. Thallium 0.44 J MS 7440-62-2. Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS 57-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts:	ŀ							T + 3
7440-28-0. Thallium 0.44 J MS 7440-62-2. Vanadium 49.9 * MS 7440-66-6 Zinc 186. *E MS 57-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts: ments:	· •							4.
7440-62-2. Vanadium 49.9 * MS 7440-66-6 Zinc 1B6. *E MS 57-12-5 Cyanide or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts: ments:	ŀ			0.44	J		MS	D.74
or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts: ments:	ŀ				<u>`</u> -	· *	-	T
or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts: ments:	·							TN
or Before: BROWN: Clarity Before: Texture: MEDIUM or After: COLORLESS Clarity After: CLEAR Artifacts: ments:	ŀ			100.			+	J ,
or After: COLORLESS Clarity After: CLEAR Artifacts:	ŀ		Oydinad				+	•
or After: COLORLESS Clarity After: CLEAR Artifacts:	ŀ							,
or After: COLORLESS Clarity After: CLEAR Artifacts:	L		<u> </u>		L		. J	
or After: COLORLESS Clarity After: CLEAR Artifacts:	or Bef	ore: BROWN	Clarit	v Before:		Texture: M	EDIUM	,
ments:				-		-		
·	or Aft	er: COLORLE	SS Clarit	y After: CLEAR		_ Artifacts:		
·								
: The reported value is estimated due to the presence of interference.								

EPA	SAMPLE	NO.
	MH35F7	

ab Name:					L		
	ALS Labora	atory Group	Contract:	EPW090	36		
ab Code:	DATAC C	Case No.: 4075	5 Mod. Ref.	No.: _	SDC	G No.: 1	4H35E5
atrix:	Soil		Lab Sample	ID: <u>1</u>	030768013		·····
Solids:	: 54.0		Date Recei	ved: 1	1/03/2010		
				_			
oncentra	ation Units	(ug/L, ug or	mg/kg dry weigh	it):mg	r/kg		
	CAS No.	Analyte	Concentration	С	Q	М]
	7429-90-5	Aluminum	5710			P]
	7440-36-0	Antimony					
	7440-38-2	Arsenic] .
· [7440-39-3	Barium] •
-	7440-41-7	Beryllium					
	7440-43-9	Cadmium					
<u> </u>	7440-70-2	Calcium	1040			P]
<u>,</u>	7440-47-3	Chromium					1
	7440-48-4	Cobalt					
F	7440-50-8	Copper					<u></u>
	7439-89-6	Iron	123000		D	P	
⊢	7439-92-1	Lead					
· · · ^	7439-95-4	Magnesium	2360			P	
l-	7439-96-5	Manganese		<u> </u>			
⊢	7439-97-6	Mercury	4				
. –	7440-02-0	Nickel			 		It m
j	7440-09-7	Potassium	1410		E	P	12.7
.⊢	7782-49-2	Selenium					,
—	7440-22-4	Silver					0.4
i-	7440-23-5	Sodium	109.	J	E .	P	926 U
<u> </u>	7440-28-0	Thallium					4
	7440-62-2	Vanadium					, ~
	7440-66-6	Zinc					
[7440-66-6 57-12-5	Zinc Cyanide					-

EPA	SAMPLE	NO.
	MH35F7	

-		•				MH35	F 1	
eb Nam	e: ALS Labor	ratory Group	Contract:	EPW090	36			
ab Cod	e: DATAC	Case No.: 407	Mod. Ref.	No.: _	SDG	No.: 1	4H35E5	<u> </u>
atrix:	Soil	· · · · · · · · · · · · · · · · · · ·	Lab Sample	ID: <u>1</u>	030768013			
Solid	s: <u>54.0</u>		Date Recei	ved: <u>1</u>	1/03/2010		·	
oncent:	ration Unit:	s (ug/L, ug or	mg/kg dry weigh	ıt): mg	/kg		-	
	CAS No.	Analyte	Concentration	С	Q	М		
	7429-90-5	Aluminum				- 	1	
-	7440-36-0	Antimony	0.58	J	Ŋ	MS	1.9	150
	7440-38-2	Arsenic	37.2		E	MS	14	U.S.
	7440-39-3	Barium	258.		*	MS	1 元	18
	7440-41-7	Beryllium	0.57	J	E	MS	0.93	30 8
	7440-43-9	Cadmium	0.79	J	*NE	MS	0.93	311 8
	7440-70-2	Calcium					0	, ,
	7440-47-3	Chromium	8.4		*	MS		- K
	7440-48-4	Cobalt	4.4		E	MS	テ	pp.
	7440-50-8	Copper	59.7		NE	MS.	7	H
	7439-89-6	Iron					~	
	7439-92-1	Lead	417.			MS	1	
	7439-95-4	Magnesium						
	7439-96-5	Manganese	636.		*	MS	<u> </u>	suf
,	7439-97-6	Mercury			****	1	-0	37
	7440-02-0	Nickel	3.6		E	MS	I	71
	7440-09-7	Potassium				 	~	٠
	7782-49-2	Selenium	2.1	J	N	MS	4.6	+) ⁸⁷
	7440-22-4	Silver	2.2		N	MS	T.≠	H
	7440-23-5	Sodium				1	7	
	7440-28-0	Thallium	0.99			MS	7+	4
	7440-62-2	Vanadium	71.7		*	MS		31
	7440-66-6	Zinc	225.		*E	MS	2	26
	57-12-5	Cyanide				1	بـ	21
·								
or Bo	fare OPANCI		Dofone.	<u> </u>	M			
			y Before:					
LOT AT	ter: BROWN	Clarit	y After: CLEAR	···-	Artifacts:			-
ments	•							
		malum de sette				_		
3 * TITE	reported A	THE IS ESCIM	ated due to the	bresen	ce or inter	rerend	ce.	

EPA	SAMPLE	NO.
	MIJSERO	<u></u>

	•				L		
Name	: ALS Labor	catory Group	Contract:	EPW09	036		
Code	: DATAC	Case No.: 4075	Mod. Ref.	No.:	s	DG No.:	MH35E5
ix:	Soil		Lab Sample	ID:	1030768014	1	
lids	: 40.4		Date Recei	ved:	11/03/2010)	
entr	ation Unit:	s (ug/L, ug or	mg/kg dry weigh	ıt): mç	g/kg		÷
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum	5060			P	
	7440-36-0	Antimony					
	7440-38-2	Arsenic					
	7440-39-3	Barium					
	7440-41-7	Beryllium					
	7440-43-9	Cadmium					
	7440-70-2	Calcium	4130			P	1
	7440-47-3	Chromium					1
•	7440-48-4	Cobalt					7
^-	7440-50-8	Copper					-
	7439-89-6	Iron	860000		D	P	1
	7439-92-1	Lead					† '
٠.	7439-95-4	Magnesium	447.	J	<u> </u>	· . P	1240 L
•	7439-96-5	Manganese	1		··············		'~ '0
	7439-97-6	Mercury					7
٠, ا	744002-0	Nickel		-			7
۱۳۰ ·	7440-09-7	Potassium	209.	J	E		1240 U 1240 U 2/1
·	7782-49-2	Selenium					1,7,12
.	7440-22-4	Silver					-
٠.	7440-23-5	Sodium	32.3	J	E	P	1240 1
•	7440-28-0	Thallium	72.7			- 	$+$ $^{\prime\prime}$
**, • }	7440-62-2	Vanadium					1 2/1
	7440-66-6	Zinc					- '
• }	57-12-5	Cyanide					-
·	37-12-3	Cyanide	<u>·</u>				
						 	-
, L		1					j
z:Bef	ore: BROWN	Clarit	y Before:	 	Texture	: MEDIUM	<u> </u>
Aft	er: YELLOW	Clarit	y After: <u>CLEAR</u>		_ Artifac	ts:	· · ·
nts:							
		value is estima	ated due to the	prese	nce of in	terfere	ice.

EPA SAMPLE NO.

MH35F8	
-	

Lab Nam	e: ALS Labor	atory Group	Contract:	EPW090	36			
Lab Cod	e: DATAC	Case No.: 407	55 Mod. Ref.	No.:	SDG	No.: <u>N</u>	4H35E	5
Matrix:	Soil		Lab Sample	ID: 1	.030768014	- - <u>1</u>		
& Solid	s: 40.4		Date Recei	ved: <u>1</u>	1/03/2010			
		_						
Concent	ration Units	ug/L, ug or	mg/kg dry weigh	it):mg	/kg	·	1	
	CAS No.	Analyte	Concentration	C	Q	М		
	7429-90-5	Aluminum					1	de
	7440-36-0	Antimony	0.94	J	. N	MS	2.5	UI,
	7440-38-2	Arsenic	103.		E	MS	1	USAN BE
	7440-39-3	Barium	36.3		*	MS	1 7	THE.
	7440-41-7	Beryllium	10.3		E	MS	J+	84
	7440-43-9	Cadmium	4.1		*NE	MS	1 τ	N
	7440-70-2	Calcium					1 -	494
1	7440-47-3	Chromium	1.6	J	*	MS	25	UB
	7440-48-4	Cobalt	17.0		E	MS	1τ	74
. '	7440-50-8	Copper	110.		NE	MS	于	Z
•	7439-89-6	Iron					1 -	
	7439-92-1	Lead	255.		······································	MS	1	
	7439-95-4	Magnesium					1 .	
	7439-96-5	Manganese	2410		D*	MS	1 —	
	7439-97-6	Mercury			 	1	-	7 [9]
	7440-02-0	Nickel	3.3		E	MS	1 ~	H
	7440-09-7	Potassium			·		"	-
	7782-49-2	Selenium	0.21	J	N	MS	42	45
	7440-22-4	Silver	0.22	J	N	MS	17.2	0 2
	7440-23-5	Sodium	0.22	 		1	''```	
	7440-28-0	Thallium	0.26	J		MS	1,2	1 71
	7440-62-2	Vanadium	13.4		*.	MS	1~企	2/18
	7440-66-6	Zinc	2470		D*E	MS	17	g/ 31
•	57-12-5	Cyanide	2,470			120	۱ ۳	1
	37-12-3	Cyanitae				-}	1	418
;							<u> </u>	
							J	
olor Be	efore: RED	Clari	ty Before:		_ Texture: M	EDIUM		
olor Ai	fter: COLORL	ESS Clari	ty After: CLEAR	· · · · · · · · · · · · · · · · · · ·	_ Artifacts:	:		
Comments	3:							
		value is estiv	mated due to the	prese	nce of inter	feren	ce.	
2, 111	~ <u></u>							

EPA	SAMPLE	NO.
	MH35F9	

		•				MH.35	F9
Lab Nam	e: ALS Labor	atory Group	Contract:	EPW09	036		
Lab Cod	e: DATAC	Case No.: 407	55 Mod. Ref.	Mod. Ref. No.: SDG No.: MH35E5			
Matrix:	Soil		Lab Sample	ID:	10307680	15	
% Solid	s: <u>76.1</u>		Date Recei	ved:	11/03/20	10	
Concent	ration Units	: (ug/L, ug or	mg/kg dry weigh	nt):n	ng/kg		
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum	8860	 		P	i .
	7440-36-0	Antimony		 			1
	7440-38-2	Arsenic		<u> </u>	ĺ	i i	1
	7440-39-3	Barium		1	ĺ		
	7440-41-7	Beryllium					
	7440-43-9	Cadmium					
	7440-70-2	Calcium	2020			P]
	7440-47-3	Chromium]
	7440-48-4	Cobalt		l	•		_
	7440-50-8	Copper]
	7439-89-6	Iron	67200		D	P	
	7439-92-1	Lead					
	7439-95-4	Magnesium	5080	<u>. </u>		P	<u> </u>
	7439-96-5	Manganese					
	7439-97-6	Mercury					
	7440-02-0	Nickel					- w
	7440-09-7	Potassium	933.		E	P	13+
	7782-49-2	Selenium					5+ 70 84 6570 84 2/18/1
	7440-22-4	Silver					~
	7440-23-5	Sodium	62.4	J	E	P]6570 ",
	7440-28-0	Thallium			·		2/18/1
	7440-62-2	Vanadium] '''
	7440-66-6	Zinc] .
	57-12-5	Cyanide					
Color Be	efore: BROWN	Clari	ty Before:		Textu	re: MEDIUM	<u> </u>
Color A	fter: YELLOW	Clari	ty After: CLEAR		Artif	acts:	
Cammar + -							
Comment					ando af	: n+o=fo===	
E: Th	e reported v	varue is esti	mated due to the	pres	ence of	Interrerei	ice.

• -17

EPA	SAMPLE	NO.
	MH35F9	

Lab Name:	ALS Laboratory Group	Contract: EPW09	0036
Lab Code:	DATAC Case No.: 40755	Mod. Ref. No.:	SDG No.: MH35E5
Matrix:	Soil	Lab Sample ID:	1030768015
% Solids:	76.1	Date Received:	11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

7429-90-5	Aluminum					1.3 UT 11 0.66 U 19
7440-36-0	Antimony	0.41	J	N	MS	1,3 01
7440-38-2	Arsenic	34.0		E	MS	1 12
7440-39-3	Barium	191.		±	MS	1 8 11
7440-41-7	Beryllium	0.46	J	E	MS	0.66 0 9
7440-43-9	Cadmium	2.0		*NE	MS	I W
7440-70-2	Calcium			•		1, A
7440-47-3	Chromium	7.0		*	MS	J-99-1911
7440-48-4	Cobalt	5.5		E	MS	J 11 319111
7440-50-8	Copper	76.4		NE	MS	5 1
7439-89-6	Iron					_
7439-92-1	Lead	361.			MS	
7439-95-4	Magnesium					LA.
7439-96-5	Manganese	804.		D*	MS	3/9/11
7439-97-6	Mercury					
7440-02-0	Nickel	3.6		E	MS	T
7440-09-7	Potassium					
7782-49-2	Selenium	1.1	J	N	MS	3.30
7440-22-4	Silver	1.4		И	MS	J+ 22
7440-23-5	Sodium					7
7440-28-0	Thallium	0.36	J.	-	MS	0.66 0.7
7440-62-2	Vanadium	45.2	- ;	*	MS	J. 79 11
7440-66-6	Zinc	478.		*E	MS	T # 3/2/11
57 12 -5	Cyanide					2/18/11

Color	Before: BROWN	Clarity Before:	-3:	Texture: MEDIUM
Color	After: BROWN	Clarity After:	CLEAR	Artifacts:
Commer E:	nts: The reported value is	estimated due	to the present	ce of interference.
				·

. 45

EPA	SAMPLE	NO.
		•

		Case No.: 4075				NO <u>F</u>	113343
trix:	Soil	· · · · · · · · · · · · · · · · · · ·	Lab Sample	ID: 10	30768016		
Solid	ls: <u>73.1</u>		Date Recei	ved: <u>1</u>	1/03/2010		
ncent	ration Units	s (ug/L, ug or	mg/kg dry weigh	it):mg/	′kg		
	CAS No.	Analyte	Concentration	С	Q	М	
	7429-90-5	Aluminum	10400			P	
	7440-36-0	Antimony					
	7440-38-2	Arsenic					
	7440-39-3	Barium					
	7440-41-7	Beryllium					
	7440-43-9	Cadmium					
	7440-70-2	Calcium	1350	ļ		P	
	7440-47-3	Chromium					
	7440-48-4	Cobalt					
	7440-50-8	Copper					
	7439-89-6	Iron	37000		<u> </u>	P	
	7439~92-1	Lead	2050				
	7439-95-4	Magnesium	. 3850 -	··		P	•
	7439-96-5 7439-97-6	Manganese Mercury					*
	7440-02-0	Nickel			· · · · · · · · · · · · · · · · · · ·	+	
	7440-02-0	Potassium	1310		E	+ P	T+ F
	7782-49-2	Selenium	1310		<u>-</u>		7
	7440-22-4	Silver				-[
	7440-23-5	Sodium	56.6		E	P	684 D
	7440-28-0	Thallium	:		~	+ -	J+ # 684 U 2/1
	7440-62-2	Vanadium		-		-	2/1
	7440-66-6	Zinc				-	
	57-12-5	Cyanide					•
	ļ				***		
or Be	efore: BROWN	Clarit	y Before:		Texture: N	JEDIUM	•
or At	fter: YELLOW	Clarit	y After: CLEAR		Artifacts	:	
ments	a •						
			ated due to the				

EPA	SAMPLE	NO.

Lab Name:	ALS Laboratory Group	Contract: EPW09036	
Lab Code:	DATAC Case No.: 40755	Mod. Ref. No.: SDG No.: M	H35E5
Matrix:	Soil	Lab Sample ID: 1030768016	
% Solids:	73.1	Date Received: 11/03/2010	

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	С	Ω	М	
7429-90-5	Aluminum]
7440-36-0	Antimony	0.42	J	И	MS	1.4 0590
7440-38-2	Arsenic	46.9		DE	MS	J 80
7440-39-3	Barium	314.		*	MS	J #
7440-41-7	Beryllium	0.96	J	DE	MS	T+ %
7440-43-9	Cadmium	0.35	J	*NE	MS	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
7440-70-2	Calcium					Jε/ Δ.
7440-47-3	Chromium	7.8		D*	MS	F 7 19/11
7440-48-4	Cobalt	14.8		DE	MS	J 72 3/9/11
7440-50-8	Copper	77.1		DNE	MS	7 72
7439-89-6	Iron					~
7439-92-1	Lead	342.			MS	1
7439-95-4	Magnesium	· .				٠ ٧. ٨٠ ٠
7439-96-5	Manganese	1560		D*	MS	7/9/13
7439-97-6	Mercury					
7440-02-0	Nickel	7.5		DE	MS	TM
7440-09-7	Potassium	, ", · · · · · · · · · · · · · · · · · ·				- 4
7782-49-2	Selenium	1.1	J	DN	MS	34400 11
7440-22-4	Silver	1.5		N ·	MS	T+ 76
7440-23-5	Sodium					
440-28-0	Thallium	0.75			MS	I+ to
440-62-2	Vanadium	48.6.		D*	MS	7 3/9/11
440-66-6	Zinc	144.		D*E	MS	J 1 3/9/11
7-12-5	Cyanide					2/18/11
					<u> </u>	

olor Before: BROWN	Clarity Before: 😤	Texture: MEDIUM
olor After: BROWN	Clarity After: CLEAR	Artifacts:
omments: E: The reported value i	s estimated due to the presen	ce of interference.

E	PA SA	AMPI	EN	0.
	M	135G	1	

b Cod	Code: DATAC Case No.: 40755			No.:	SDG	No.: 1	MH35E5
atrix: Soil			Lab Sample	ID: <u>1</u>	030768017		
Solid	ls: <u>26.3</u>		Date Recei	ved: <u>1</u>	1/03/2010		
ncent	ration Units	(ug/L, ug or	mg/kg dry weigh	nt): mg.	/kg		•
	CAS No.	Analyte	Concentration	С	Q.	м]
	7429-90-5	Aluminum	5070			P	•
	7440-36-0	Antimony					1
	7440-38-2	Arsenic					1
	7440-39-3	Barium					
	7440-41-7	Beryllium]
	7440-43-9	Cadmium					
	7440-70-2	Calcium	1150	ਹ		P	1900 U
	7440-47-3	Chromium	-				j
	7440-48-4	Cobalt	;				<u> </u>
	7440-50-8	Copper	•				<u> </u> -
	7439-89-6	Iron	341000		D	P	
	7439-92-1	Lead]
•	7439-95-4	Magnesium	21-30 .			P] : .
	7439-96-5	Manganese				_	-
	7439-97-6	Mercury			· · · · · · · · · · · · · · · · · · ·		
	7440-02-0	Nickel	11.00			+	1000 11
	7440-09-7	Potassium	1160	J	E	P	1900 0
	7782-49-2	Selenium					-
	7440-22-4 7440-23-5	Silver Sodium	77.5	J	E	P	19001
	7440-23-5	Thallium		"	<u></u>	- - -	1 1000
	7440-62-2	Vanadium	 				1900 U 1900 U
	7440-66-6	Zinc		 			1
	57-12-5	Cyanide				+	
		-1 -1	-		-		1
							1
	37-12-5	Cyanice					
lor Be	efore: BROWN	Clarit	ty Befare:		Texture: 1	MEDIUM	
lor A	fter YELLOW				Artifacts		
TOT A	rcer: TETTOM	Crarit	ty After: CLEAR		- WILTIGGER	• —	
ments	5:						
			ated due to the		e :		

EPA	SAMPLE	NO.
	MUSECI	***************************************

						мнз	5G1	
Lab Name	: ALS Labora	atory Group	Contract:	EPWO9	036			
Lab Code	: DATAC C	Case No.: 4075	55 Mod. Ref.	No.:		SDG No.:	MH35E5	
Matrix:	Soil		Lab Sample	ID:	10307680	17		
% Solids	: 26.3	·····	Date Recei	ved:	11/03/20	10		
Concentr	ation Units	(ug/L, ug or	mg/kg dry weigh	it):m	ıg/kg			
	CAS No.	Analyte	Concentration	С	٥	м	٦	
	7429-90-5	Aluminum					\dashv	
	7440-36-0	Antimony	1.4	J	N	MS	3,805	%
-	7440-38-2	Arsenic	115.	- '	E	MS	- 1 2 0 0 - 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	7440-39-3	Barium	80.6		*	MS		
	7440-41-7	Beryllium	0.29		E	MS	→ ~	
	7440-43-9	Cadmium	0.45	J	*NE		1.90 7	
	7440-70-2	Calcium	0.15		, , ,	- 100		
	7440-47-3	Chromium	6,2		*	MS	Int	ΚΑ,
	7440-48-4	Cobalt	2.1		E	MS	─	2/9/1
	7440-50-8	Copper	112.		NE	MS	7 7	
	7439-89-6	Iron						
	7439-92-1	Lead	1700			MS	┪.	
	7439-95-4	Magnesium					┪	
	7439-96-5	Manganese	540.	···	*	мз	Turk	44
	7439-97-6	Mercury					- -	ไปเป
	7440-02-0	Nickel	. 2.3	$\neg \neg$	E	MS	7 71	
	7440-09-7	Potassium					⊣	_
	7782-49-2	Selenium	0.63	J	N	MS	795138	$\int z^{2}$
	7440-22-4	Silver	4.1		N	MS	3+ 31	
	7440-23-5	Sodium	·					
İ	7440-28-0	Thallium	0.43	J		MS	1.9 U #	, , A.
· .	7440-62-2	Vanadium	2 96.9		*	MS	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	41
l	7440-66-6	Zinc	177.		*E	MS	17 2	314
	57-12-5	Cyanide	· .		··		J 2/	18/11
Color Bei	Fore: ORANGE	Clarit	y∺Before:		Textu	e: MEDIU	M	
Color Aft	er: BROWN	Clarit	y After: CLEAR		Artifa	icts:		

E: The reported value is estimated due to the presence of interference.

Comments:

EPA	SAMPLE	NO.
•	MH35G2	

	•				Inno	5G2
ab Name	a: ALS Labor	atory Group	Contract:	EPW09036		
ab Code	: DATAC	Case No.: 40755	Mod. Ref.	No.:	_ SDG No.:	MH35E5
atrix:	Soil		Lab Sample	ID: 103076	8018	
Solids	: 63.9	· · · · · · · · · · · · · · · · · · ·	Date Recei	ved: <u>11/03/</u>	2010	<u> </u>
ncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	it):mg/kg		
	CAS No.	Analyte	Concentration	С	Ω м	7 .
	7429-90-5	Aluminum	6160		P	Ⅎ
	7440-36-0	Antimony				-
	7440-38-2	Arsenic				- .
	7440-39-3	Barium	~~			- -
	7440-41-7	Beryllium				-
	7440-43-9	Cadmium				
	7440-70-2	Calcium	867.		P	-
	7440-47-3	Chromium				:
	7440-48-4	Cobalt .				
	7440-50-8	Copper				
	7439-89-6	Iron	57100		P	-
-	7439-92-1	Lead ·	37100		<u>-</u> _	·
	7439-95-4	Magnesium .	2360			
	7439-96-5	Manganese	2300			
	7439-97-6	Mercury				_
	7440-02-0	Nickel				-
	7440-09-7	Potassium	1350		E P	1 - 1
	7782-49-2	Selenium	1330	F	P P	J+ 7
	7440-22-4	Silver				
	7440-23-5	Sodium	100.	J F		700
- 1	7440-28-0	Thallium.	100.	J E	P	_ /82 U
ŀ	7440-62-2	Vanadium:				-
ŀ	7440-66-6	Zinc -				⊣ ′
ŀ	57-12-5			•		- •
ŀ	31-12-3	Cyanide .				
. }	7.4	ļ				4
1		l		1		
or Bef	ore: BROWN	Clarity	Before:	Text	ure: MEDIUM	1
or Aft	er: YELLOW	Clarity	After: CLEAR	Arti	facts:	
ments:				·		
E: The	reported va	alue is estimat	ed due to the	nresence of	interfere	ice
		II GOOMIGE	446 60 6116	Proposite Of	THEFT FET GI	
		·			.	

EPA	SAMPLE	NO.
	MUSECO	

ab Code	E: DATAC (Case No.: 407	Mod. Ref.	No.:	SDG	Ño.:	мн35е	5	
Matrix:	Soil		Lab Sample	ID:	1030768018				
& Solids	s: <u>63.9</u>		Date Recei	ved:	11/03/2010				
					,				
Concentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t): n	ng/kg				
	CAS No.	Analyte	Concentration	С	Q	М	7		
	7429-90-5	Aluminum				 	1		
	7440-36-0	Antimony	0.44	J	N	MS	1.6	UJ	14
	7440-38-2	Arsenic	24.3		E	MS	0.7		Zs.
	7440-39-3	Barium	226.		*	MS	1 3		m
	7440-41-7	Beryllium	0.47	J	E	MS	0,7	8 V	El-
	7440-43-9	Cadmium	0.44	J	*NE	MS	0.2	80	H.
	7440-70-2	Calcium					10.,		Ú٨
	7440-47-3	Chromium	6.9		*	MS	1 7		*A 31214
	7440-48-4	Cobalt	2.9		E	MS	I	H	3131.
	7440-50-8	Copper	47.8		NE	MS	I	U	
	7439-89-6	Iron]		
	7439-92-1	Lead	304.			MS]		
-	7439-95-4	Magnesium				1] . ·		.U.A.
	7439-96-5	Manganese	407.		*	MS] —	7	3/9/11
	7439-97~6	Mercury				<u> </u>	j		.
	7440-02-0	Nickel	2.8		E	MS	J T	W	
	7440-09-7	Potassium						. 7	2
	7782-49-2	Selenium	2.0	J	N	MS] 3, 9	₩*	1,
	7440-22-4	Silver	1.9		N	MS	17+	34	
	7440-23-5	Sodium				<u> </u>			
	7440-28-0	Thallium	0.80			MS	17+	\mathcal{H}	ν.Α :
	7440-62-2	Vanadium	56.3		*	MS	7	- 37	3/3/16
	7440-66-6	Zinc	131.	.,	*E	MS	I	71	1.01.
-	57-12-5	Cyanide						:	6 18 [n
						ļ			
ł		<u> </u>				L			
olor Bei	fore: BROWN	ખઃ Clarit	y Before:		Texture: M	EDIUM		:	
olor Aft	er: BROWN		y After: CLEAR						
omments:									

EPA	SAMPLE	NO.
	MH35G3	-

ab Name	: ALS Labor	atory Group	Contract:	EPWUS	9036			
ab Code	DATAC	Case No.: 407	55 Mod. Ref.	No.:	SDG	No.: 1	MH35E5	
fatrix:	Soil	·	Lab Sample	ID:	1030768019			_
Solids	: <u>78.6</u>		Date Recei	ved:	11/03/2010			_
					*-			
oncentr	ation Units	s (ug/L; ug or	mg/kg dry weigh	1t): n	ng/kg	•	_	
	CAS No.	Analyte	Concentration	С	Q	М		
	7429-90-5	Aluminum	7840			P		
	7440-36-0	Antimony]	
	7440-38-2	Arsenic					_	
	7440-39-3	Barium					1	
	7440-41-7	Beryllium	·					
	7440-43-9	Cadmium				_		2
	7440-70-2	Calcium	1120			P	<u>]</u> .	,
•	7440-47-3	Chromium		<u> </u>		1		
	7440-48-4	Cobalt]	
	7440-50-8	Copper	20000	<u> </u>			1	•
	7439-89-6	Iron	33000	<u> </u>		P	1	
	7439-92-1	Lead	6000			 -	1	
	7439-95-4 7439-96-5	Magnesium	6800			P	-	•
	7439-96-5	Manganese	 				1	•
	7440-02-0	Mercury Nickel				 	1	•
	7440-02-0	Potassium	510.	J	Ė	P	121	11 "2
	7782-49-2	Selenium	J.U			+ -	636	0., 7
	7440-22-4	Silver				- 	1	
i	7440-23-5	Sodium	25.2	J	E	P	636 636	1) 2
	7440-28-0	. Thallium				+ -	000	
	7440-62-2	. Vanadium					i	$\mathcal{H}_{\mathcal{U}}$
	7440-66-6	Zinc			{··	 	1	
	57-12-5	Cyanide					1	•
	,					7	1	: *
		•				1	1	- 1
alam Pa	Fame - DDOWN	1. Class	, Do Source				ı	
отог ве.	fore: BROWN	ri. Crarr	ty Before:		Texture: C	CARSE		
olor Af	ter: YELLOW	Clari	ty After: CLEAR		Artifacts	:		_
omments	:							
E: The	reported v	alue is estim	ated due to the	pres	ence of inter	feren	ce.	
				-				-

EPA	SAMPLE	NO.
	MH35G3	

o Name	: ALS Labora	tory Group	Contract:	EPW090	36.				
b Code	: DATAC C	ase No.: 40755	Mod. Ref.	No.: _	SDG N	o.: <u>1</u>	1H35E5		
trix:	Soil		Lab Sample	ID: <u>1</u>	.030768019				
Solids	: 78.6		Date Recei	ved: 1	1/03/2010				
ncentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t):mg	/kg				
	CAS No.	Analyte	Concentration	С	0	М			
	7429-90-5	Aluminum					1		
	7440-36-0	Antimony	0.59	J	N	MS	1.3	UT o	7
	7440-38-2	Arsenic	37.7	 	E	MS	+	- 7	Ź
	7440-39-3	Barium	95.5		*	MS	1.3	į	j
	7440-41-7	Beryllium	0.46	J	E	MS	264	الأ (را	ź
	7440-43-9	Cadmium	17.5		*NE	MS	1 +	7	7
	7440-70-2	Calcium					~	4	
	7440-47-3	Chromium	7.9	 	*	MS		- 20	,
	7440-48-4	Cobalt	9.3		E	MS	ĪŦ	1	,
	7440-50-8	Copper	159.	-	NE	MS	447	- 7	<u>'</u>
	7439-89-6	Iron					~	•	
	7439-92-1	Lead	847.		D	MS			
	7439-95-4	Magnesium						_	
	7439-96-5	Manganese	1200		D*	MS	سست		t
	7439-97-6	Mercury					`	•	•
	7440-02-0	Nickel	7.1		Е	MS	1	···	
	7440-09-7	Potassium						¥'	,
	7782-49-2	Selenium	0.92	J	N	MS	22	ستحكيب	1
	7440-22-4	Silver	2.9		N	MS	J+		Ī
	7440-23-5	Sodium	-	1				•	•
	7440-28-0	Thallium	0.42	J		MS	0.6	IU	
	7440-62-2	Vanadium	65.9		*	MS	J	·	¥
	7440-66-6	Zinc	4910		D*E	MS	1 = -	'	1
	57-12-5	Cyanide					- :	10	Н
					·				٠
	`						i '		
1 5	e profine		D. 5	·	m	AD 017	-	•	
tor Re	fore: BROWN	Clarity	seiore:		_ Texture: CO	AKSE			
lor Af	ter: COLORLE	SS Clarity	After: CLEAR		_ Artifacts:			_	
mments	•	•							
		alue is ostima	ted due to the	nress	nce of interf	aron	ce		
r. III	Teborced As	THE TO ESCITING	ted due to the	Prese	TITE OF THEST	GT C11	 		

 EPA	SAMPLE	NO.	
	MH35G4		

Tab Nome	. ATS Tabors	story Group	Contract:	EPW090				
			Mod. Ref.			OG No.: 1	 инз5е5	
Matrix:			Lab Sample					
& Solids			Date Recei	ved: 1	1/03/2010	<u> </u>		
								•
Concentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t): mg	/kg			
	CAS No.	Analyte	Concentration	С	Q	М		
	7429-90-5	Aluminum	6640			P]	
	7440~36-0	Antimony]	
	7440-38-2	Arsenic					1	
	7440-39-3	Barium						
	7440-41-7	Beryllium]	
	7440-43-9	Cadmium					1	
	7440-70-2	Calcium	1050			P	1.	
	7440-47-3	Chromium					1	
	7440-48-4	Cobalt] .:	
	7440-50-8	Copper					<u> </u>	
	7439-89-6	Iron	81600		D	P		
	7439-92-1	Lead						
	7439 -95-4	Magnesium	3090			P		-
	7439-96-5	Manganese] .	
	7439-97-6	Mercury]	
	7440-02-0	Nickel					1.	
	7440-09-7	Potassium	1230		E	P	17+	The
	7782-49-2	Selenium]	
	7440-22-4	Silver					1	٠
	7440-23-5	Sodium	94.7	J	E	₽	1813	U I2 2/18/1
	7440-28-0	Thallium					TI	-101
	7440-62-2	Vanadium					1.	41811
	7440-66-6	Zinc					<u> </u>	
	57-12-5	Cyanide]	
	• •]] .	
	, .							
•	,							
Color Be	fore: BROWN	Clarit	ty Before:		_ Texture	: MEDIUM	35	
Color Af	ter: YELLOW	Clarit	ty After: CLEAR		_ Artifac	ts:		
			•					
Comments						+ o = f = = c =		
E: The	e reported v	alue is estin	nated due to the	prese	nce or in	terrerer	ice.	

		THOROAMT	C MIGHIDIO DIIII	01122	~ EPA	SAMPI	E NO.	¬
						MH350	3 4	
					<u> </u>			- 1
Lab Name	: ALS Labora	tory Group	Contract: E	EPW09	036			_ '
Lab Code: DATAC Case No.: 40755		5 Mod. Ref. 1	Mod. Ref. No.:		SDG No.: MH35E5			
Matrix: Soil			Lab Sample	ID:	1030768020	·		_
			D-to Dogoi:		11/03/2010			
% Solids	: 61.5		Date Recei	veu:	11/03/2010			_
Concentr	ation Units	(ug/L, ug or	mg/kg dry weigh	t): m	g/kg			
	CAS No.	Analyte	Concentration	С	Q	М		
	7429-90-5	Aluminum						
	7440-36-0	Antimony	0.33	J	N	MS	1.6 U	はなりません
	7440-38-2	Arsenic	34.7		E	MS	I	M
	7440-39-3	Barium	250.		*	MS	1	<i>II</i> ,
	7440-41-7	Beryllium	0.56	J	Е	MS	0.8	U 88
	7440-43-9	Cadmium	2.7		*NE	MS] #	Fr
	7440-70-2	Calcium					<u>.</u>	_kA
	7440-47-3	Chromium	9.9		*	MS]	3/9/1
	7440-48-4	Cobalt	6.4		E	MS	J	AZ.
	7440-50-8	Copper	60.0		NE · »	MS] 丁	The
	7439-89-6	Iron			-]	
-	7439-92-1	Lead	346.			MS]	_
	7439-95-4	Magnesium	•		-	•]	JKA.
	7439-96-5	Manganese	1380		D*	MS]	3/4/11
	7439-97-6	Mercury]	سر . م د
• •	7440-02-0	Nickel	4.7		E	MS	I	All
ar-	7440-09-7	Potassium]	W - a
	7782-49-2	Selenium	2.0	J	N	MS	14.1-t	7 2 1
•	7440-22-4	Silver	1.7		N	MS	T+	34
, -	7440-23-5	Sodium				<u> </u>		-41 -M
<i>:</i> .	7440-28-0	Thallium	0.90			MS]#+	1-KA
. •	7440-62-2	Vanadium	72.2		*	MS	7	3/2
•	7440-66-6	Zinc	693.		*E	MS	1 3	الما الما
	57-12-5	Cyanide				ļ.,		2(1811)
					٠	ļ	1	
~ '							<u> </u>	
Color Bè	fore: ORANGE	Clarit	y Before:	-	Texture: M	EDIUM	<u> </u>	_
Color Af	ter: BROWN	Clarit	y After: CLEAR		Artifacts:			
Comments								
E: The	e reported v	alue is estim	ated due to the	pres	sence of inter	ferer	ice.	_
								_

REGION VIII DATA VALIDATION REPORT INORGANIC

Case/IDD No.	Site N	lame	Operable Unit
40755 / 1008-16	Upper Animas Min	ing District	
RPM/OSC Name			
Sabrina Forrest			
Contractor Laboratory	Contract No.	SDG No.	Laboratory DPO/Region
ALS Laboratory Group	EPW05026	MH35G5	

Review Assigned Date:	December 15, 2010	Data Validator:	Fred Luck	
Review Completion Date:	February 18, 2011	Report Reviewer.	Lesley Boyd	

Sample ID	Matrix	Analysis
MH35G5	Sediment	CLPMetals
MH35G6		
MH35G7		
MH35G8		
MH35G9		
MH35H0		
MH35H1		
мн35н2		
мн35н3	,	
MH35H4		
мн35Н5		
MH35H6	·	
МН35Н8	Mine Sediment	
мн35н9		

UOS

URS Operating Services, Inc.

Data Validation Report

Sample ID	Matrix	Analysis
MH35J0	Sediment	CLP –Metals
MH35J1		
мн35J2	Mine Sediment	
МН35J3	Sediment	,
MH35J4	Soil - Surface	
мн35J5		

UOS

URS Operating Services, Inc.

Data Validation Report

DATA QUALITY STATEMENT

()	Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() (X)	Data are UNACCEPTABLE according to EPA Functional Guidelines. Data are acceptable with QUALIFICATIONS noted in review.
Teleph	none/Communication Logs Enclosed? Yes NoX
CLP P	roject Officer Attention Required? Yes No X If yes, list the items that require on:

Data Validation Report

URS Operating Services, Inc.

INORGANIC DATA VALIDATION REPORT

REVIEW NARRATIVE SUMMARY

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-15% of the results reported in <u>each</u> of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, Case No. 40755, SDG No. MH35G5, consisted of twenty sediment / mine sediment / soil –surface samples for metals by ICP-AES and ICP-MS (ISM01.2). The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH35G5, MH35G6, MH35G7, MH35G8, MH35G9, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H6, MH35H9, MH35J0, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Antimony	U	Blank Contamination	3
MH35G5, MH35G6, MH35G7, MH35G9, MH35H0, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H6, MH35H8, MH35H9, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Beryllium			
MH35G6, MH35G7, MH35G8, MH35G9, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H8, MH35H9, MH35J1, MH35J2, MH35J3, MH35J5	Cadmium			
MH35G5, MH35G7, MH35G9, MH35H2, MH35H4, MH35H5, MH35H6, MH35J1, MH35J2	Calcium			
МН35Н9	Chromium			
MH35G7, MH35G9, MH35H0, MH35H8, MH35H9	Cobalt			
MH35G7, MH35G9, MH35H0, MH35H2, MH35H4, MH35H8, MH35H9, MH35J1, MH35J2	Magnesium			
МН35G7, МН35H0, МН35H8 МН35H9	Nickel			

UOS

URS Operating Services, Inc.

Elements	Oualifiers	Reason for Qualification	Review
Potassium	U	Blank Contamination	Section 3
Selenium			
Silver			
Sodium			
Thallium			
Beryllium	J+	Potentially false positive detection in ICS check sample	4
Potassium [:]			-
Thallium	UJ	Potentially false negative detection in ICS check sample	
Selenium, Zinc	1-/ UI	MS 30 - 74%R, Post Digestion Spike %R < 75%	7
Antimony, Silver	J /ÜJ	MS <30%R, Post Digestion Spike %R≥75%	
Arsenic, Beryllium, Cadmium, Chromium, Copper, Manganese, Nickel,	J .	Serial Dilution %D > 10%	8
	Potassium Selenium Silver Sodium Thallium Potassium Thallium Antimony, Silver Arsenic, Beryllium, Cadmium, Chromium, Chromium, Copper, Manganese,	Potassium Selenium Silver Sodium Thallium Herotassium Thallium UJ Selenium, J-/UJ Zinc Antimony, J/UJ Silver Arsenic, Beryllium, Cadmium, Chromium, Chromium, Copper, Manganese, J	Potassium Selenium Beryllium Potassium J+ Potentially false positive detection in ICS check sample Thallium UJ Potentially false negative detection in ICS check sample Selenium, Zinc Antimony, Silver J/UJ MS 30 - 74%R, Post Digestion Spike %R < 75% Antimony, Silver J/UJ Serial Dilution %D > 10% Serial Dilution %D > 10%

1. PRESERVATION AND HOLDING TIMES

Yes	No_X
Comments:	The samples were analyzed within 180 days for the ICP metals. According to the Sample Log-In Sheet and case narrative, the two sample coolers were each received at a temperature of 7°C, which is outside the recommended temperature range of 4 ± 2 °C. The Sample Log-In Sheet further indicates that neither cooler contained a Cooler Temperature Indicator Bottle, as indicated on the form to be required. There is also no indication that SMO was contacted regarding this issue neither is any documentation of the resolution or indication of how the cooler temperature was derived provided.
	When the sample preservation criteria are not met, but the sample analysis and extraction are within the technical holding times then professional judgment is used whether to qualify the data. No action was taken since the preservation exceedence was minimal and the extraction and holding times were well within the established parameters.
-	No other shipping or receiving problems were noted. Chain-of-custody, summary forms, and raw data were evaluated.
	NT CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION
	INT CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION (ICV AND CCV)
VERIFICAT	TION (ICV AND CCV) d continuing calibration verification standards (ICV and CCV, respectively) met SOW
VERIFICAT	TION (ICV AND CCV) d continuing calibration verification standards (ICV and CCV, respectively) met SOW
VERIFICATION The initial an requirements	TION (ICV AND CCV) d continuing calibration verification standards (ICV and CCV, respectively) met SOW .
VERIFICATE The initial an requirements Yes_X Comments:	TION (ICV AND CCV) d continuing calibration verification standards (ICV and CCV, respectively) met SOW No No None.
VERIFICATE The initial an requirements Yes_X Comments:	TION (ICV AND CCV) d continuing calibration verification standards (ICV and CCV, respectively) met SOW No No None.
The initial an requirements Yes X Comments: The calibratic and 80-120%	d continuing calibration verification standards (ICV and CCV, respectively) met SOW No None. on verification results were within 90-110% recovery for metals, 85-115% for cyanide, for mercury.
The initial an requirements Yes_X Comments: The calibratic and 80-120% Yes_X Comments:	MION (ICV AND CCV) Indication description of the continuing calibration verification standards (ICV and CCV, respectively) met SOW No None. None. on verification results were within 90-110% recovery for metals, 85-115% for cyanide, for mercury. No
The initial an requirements Yes_X Comments: The calibratic and 80-120% Yes_X Comments:	d continuing calibration verification standards (ICV and CCV, respectively) met SOW No None. on verification results were within 90-110% recovery for metals, 85-115% for cyanide, for mercury. No No No No None.

URS Operating Services, Inc.

Data Validation Report

3.	BLANKS	۰
----	--------	---

The initial and	continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.
Yes_X_	No
Comments:	For the ICP-AES analyses, the ICB was rerun.
The continuin	g calibration blanks were run at 10% frequency.
Yes_X_	No
Comments:	Continuing calibration blanks were run every 10 samples.
	preparation blank was run at the frequency of one per twenty samples, or per sample (whichever is more frequent), and for each matrix analyzed.
Yes_X_	No
Comments:	None.
All analyzed b	lanks were free of contamination.
Yes	No_X

Comments: The following table lists the blanks with contamination that resulted in sample qualification, elements present, affected samples, and data qualifiers:

URS Operating Services, Inc.

Data Validation Report

Blank Contaminants

100 to bloom on Color		45555555	Karage in the same	Concentration	Associated	- Concentration	
Blank	Contam-	CRQL	MDL	Found in	Samples	Found in	Qualifier/
D.	inant	(mg/Kg)	(mg/Kg)	Blank (mg/Kg)	oamples :	Sample (mg/Kg)	Adjustment
PB	Antimony	1	0.0097	0.017	MH35G5	0.44	1211
LD	Androns] ·1	0.009/	0.017			1.3 U
		ĺ			MH35G6	0.82	1.6 U
					MH35G7	1.1	2.8 U
					MH35G8	0.14	1.3 U
					MH35G9	1.8	3.0 U
					MH35H1	0.46	3.2 U
					MH35H2	0.65	2.7 U
1	1	, ,			MH35H3	0.20	1.3 U
İ					MH35H4	0.74	2.8 U
					MH35H5	0.47	2.2 U
	1		-		MH35H6	1.6	2.7 U
	1				MH35H9	1.2	2.9 U
		ŧ l			MH35J0	0.29	1.7 U
1	-				MH35J1	1.0	3.0 U
1	ŀ				MH35J2	1.7	3.1 U
] .	l .				MH35J3	0.51	3.5 U
	1			·	MH35J4	0.94	1.3 U
		<u> </u>			MH35J5	0.14	1.2 U
PB	Beryllium	0.5	0.0032	0.013	MH35G5	0.25	0.63 U
FB	Deralling	0.5	0.0032	0.013	MH35G6	0.38	
-							0.79 U
					MH35G7	0.13	1.4 U
					MH35G9	0.74	1.5 U
		ŀ			MH35H0	0.37	1.1 U
					MH35H1	1.1	1.6 U
					MH35H2	0.33	1.4 U
]			MH35H3	0.23	0.64 U
					MH35H4	0.41	1.4.U
					MH35H5	0.44	1.1 U
			•]	MH35H6	0.52	1.4 U
				 	MH35H8	0.26	1.7 U
					MH35H9	1.2	1.5 U
	'			ļ	MH35J1	0.26	1.5 U
					MH35J2	0.13	1.5 U
		· ·		.	MH35J3	1.6	1.7 U
					MH35J4	0.48	0.64 U
					MH35J5	0.44	0.60 U
PB	Cadmium	0.5	0.0027	0.004	MH35G6	0.73	0.79 U
					MH35G7	0.11	1.4 U
ĺ					MH35G8	0.42	0.64 U
				[MH35G9	1.2	1.5 U
	ļ				MH35H1	1.1	1.6 U
	į		i		MH35H2	0.58	1.6 U 1.4 U
	•				MH35H3	0.58	0.64 U
	•	ļ			MH35H4	0.50	1.4 U
					MH35H5	0.70	1.1 U
]	MH35H8	0.12	1.7 U
					мнз5н9	0.74	1.5 U
	İ			•	MH35J1	0.28	1.5 U
	ļ		•		MH35J2	1.2	1.5 U
					MH35J3	1.1	1.7 U
1					MH35J5	0.11	0.60 U.
. [1				. [-
				<u></u>			

Data Validation Report

. Alkaninkan		(minner man 's m	len borgogge aler-sig		Karana da karana da karana da karana da karana da karana da karana da karana da karana da karana da karana da k	president and a second	PANCELUI A REZIVI COLUETEUN
Blank	Contam-	CRQL	MDL	-Concentration	Associated	Concentration	Qualifier/
ID :	inant	(mg/Kg)	(mg/Kg)	Found in	Samples	Eound in	Adjustment
DD	Calcium	College Britis	1.7	Blank (mg/Kg):	MITTERS	Sample (mg/Kg)	(07.11
PB	Calcium	500	1./	1.957	MH35G5 MH35G7	195	627 U 1380 U
	•	<u> </u>			MH35G9	1110 1390	1500 U
		1				1330	1300 U 1370 U
					MH35H2 MH35H4	1110	
]				1410 U
				1	MH35H5	859	1100 U
					MH35H6	1270	1370 U
					MH35J1	1070	1510 U
	<u></u>	1	0.026	0.000	MH35J2	729	1530 U
PB	Chromium	1	0.026	0.060	MH35H9	0.62	2.9 U
PB	Cobalt	1	0.0053	0.500	MH35G7	1.4	2.8 U
	<u> </u>				MH35G9	2.3	3.0 U
			İ	ļ	MH35H0	1.1	2.2 U
					MH35H8	1.1	3.4 U
ļ	<u> </u>				MH35H9	0.62	2.9 U
PB	Magnesium	500	1.2	2.721	MH35G7	753	1380 U
	,				MH35G9	646	1500 U
				·	MH35H0	791	1120 U
	j l	·			MH35H2	1150	1370 U
					MH35H4	941	1410 U
					MH35H8	1460	1680 U
	f .				MH35H9	327	1460 U
	[]			l ·	MH35J1	1020	1510 U
					MH35J2	1040	1530 U
PB	Nickel	0.5	0.013	0.500	MH35G7	0.99	1.4 U
	1				MH35H0	1.1	1.1 [.] U
					MH35H8	1.1	1.7 U
					MH35H9	0.59	1.5 U
PB	Potassium	500	5.8	-8.872	MH35G5	606	627 U
					MH35G7	498	1380 U
				·	MH35G9	514	1500 U
					MH35H0	504	1120 U
					MH35H1	817	1580 U
					MH35H2	729	· 1370 U
					MH35H3	297	638 U
					MH35H4	730	1410 U
				'	MH35H6	956	1370 U
	İ				MH35H8	583	1680 U
]	MH35H9	268	1460 U
					MH35J0	703	825 U
	·	;			MH35J1	1020	1510 U
					MH35J2	373	1530 U
			-		MH35J3	974	1740 U
PB	Selenium	2.5	0.036	2.500	MH35G5	1.5	3.1 U
		-2		*-	MH35G6	1.8	4.0 U
					MH35G7	0.78	6.9 U
					MH35G8	1.0	3.2 U
	•]	MH35G9	1.0	7.5 U
	J				MH35H0	0.83	5.6 U
	İ				MH35H1	1.3	7.9 U
	· [MH35H2	0.83	6.9 U
			.		MH35H3	0.92	3.2 U
					MH35H4	0.69	7.1 U
,	•			[MH35H5	1.6	7.1 U 5.5 U
	1				MH35H6	1.1	6.9 U
					DATTOCKTVI	. 1.1	0.90

Data Validation Report

URS Operating Services, Inc.

Concentration Concentration Associated MDL Contam-Blank CRQL Qualifier/ Found in Samples Found in ID inant (mg/Kg) (mg/Kg) Adjustment Blank (mg/Kg) Sample (mg/Kg) $\overline{\mathrm{PB}}$ Selenium 2.5 0.036 2.500 MH35H8 2.4 8.4 U MH35H9 0.34 7.3 U MH35J0 0.324.1 U MH35J1 1.5 7.6 U MH35J2 0.23 7.6 U MH35J3 1.2 8.7 U 3.2 U MH35J4 0.85 MH35J5 0.62 3.0 U PB 0.0023 Silver 0.5 0.015 MH35G7 0.38 1.4 U MH35G8 0.48 0.64 U MH35H1 1.4 1.6 U MH35H8 0.29 1.7 U 0.88 MH35H9 1.5 U MH35J2 0.84 1.5 U MH35J3 0.56 1.7 U 500 0.73 PB Sodium 17.117 MH35G5 26.2 627 U MH35G6 72.1 795 U MH35G7 53.5 1380 U 72.2 MH35G8 640 U 38.4 MH35G9 1500 U 33.9 MH35H0 1120 U 44.5 MH35H1 1580 U MH35H2 53.0 1370 U MH35H3 20.8 638 U 73.1 MH35H4 1410 U 102 MH35H5 1100 U MH35H6 78.6 1370 U MH35H8 141 1680 U 28.6 MH35H9 1460 U 25.2 MH35J0 825 U 90.9 MH35J1 1510 U 30.5 MH35J2 1530 U MH35J3 88.4 1740 U MH35J4 77.9 640 U MH35J5 81.2 605 U PB Thallium 0.5 0.0015 0.500 MH35G5 0.45 0.63 U 0.64 MH35G6 0.79 U 0.12 MH35G7 1.4 U MH35G8 0.31 0.64 U MH35G9 0.19 1.5 U MH35H0 0.11 1.1 U MH35H1 0.77 1.6 U MH35H2 0.33 1.4 U MH35H3 0.23 0.64 U MH35H4 0.33 1.4 U MH35H5 0.61 1.1 U MH35H6 1.4 U 0.41 MH35H8 0.070 1.7 U MH35H9 0.017 1.5 U 0.83 U MH35J0 0.39 MH35J1 0.31 1.5 U MH35J2 0.25 1.5 U MH35J3 0.50 1.7 U MH35J4 0.31 0.64 U MH35J5 0.33 0.60 U

4.

Data Validation Report

	INDUCTIVE	LY COUPLED PLASMA - INTERFERENCE CHECK SAMPLE (ICP-ICS)
		erence check sample (ICS) was run at the beginning and end of each sample analysis 20 analytical samples, but <u>not</u> prior to the ICV.
	Yes_X_	No
	Comments:	None.
	Percent recove was within ± th	ry of the analytes in the ICS solutions were within the range of 80-120% or the result ne CRQL.
	Yes	No_X_
	Comments:	For Sodium, the ICP-AES Interference Check Sample Results exceeded the True Values by approximately 2.0 times the CRQL, this analysis was repeated with similar results. Results for all samples for Sodium analyses, have already been flagged 'U' due to blank contamination therefore no further qualification is applied due to the ICP-AES ICS result.
	Sample results interference wa	for aluminum, calcium, iron, and magnesium were less than the ICSA values or no as noted.
. <u>;</u>	Yes X	No NA
	Comments:	None.
	Sample results	contain potential false positives and false negatives.
	Yes_X_	No
	Comments: negatives that r	The following table lists the elements with potential false positives or false esulted in sample qualification, affected samples, and data qualifiers:

ICP Interferences

Elënent	Concentration cound in ICSA Sample (ug/L)		Concentration Round in Sample (mg/Kg)	Adjustment
Beryllium	0.36	MH35G8 MH35J0	>MDL	J+
Potassium		MH35G6 MH35G8 MH35H5 MH35J4 MH35J5		
Thallium	-0.05	All samples	All concentrations	ÚJ

5.	LABORATORY	CONTROL	SAMPLE

Thallium	-0.05		All samples	All concentrations	ÚJ
LABORATO	RY CONT	ROL SAMPI	L ie	· · · · · · · · · · · · · · · · · · ·	
				nalyzed with every tw oup (whichever is m	
Yes_X	No			•	
Comments:	None.				
All results we	re within co	ontrol limits O	F 70-130%.	•	
Yes X	No		·;		
Comments:	None.	·• .			
FORM 6 & 1	2 - DUPLI	CATE SAMP	LE ANALYSIS		
			ed with every twer hever is more freq	ity or fewer samples uent).	of a similar matr
Yes <u>X</u>	No	NA			
Comments:	None.	•			
The RPDs we	re calculate	d correctly.		•	
Yes <u>X</u>	No	NA		•	•
Comments:	None.				

URS Operating Services, Inc.

For sample concentrations greater than five times the CRQL, R	PDs were within 20% (limits of
35% apply for soil/sediments/tailings samples).	•

Yes X No___

Comments: None.

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of CRQL (absolute difference < CRQL for soils).

Yes X No__

Comments: None.

7. SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

NA

Comments: None.

The percent recoveries (%Rs) were calculated correctly.

NA

Yes X No NA

Comments: None.

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

No_X Yes

The following table lists the spike recoveries outside control limits, post digestion Comments:

spike recoveries, samples affected, and data qualifiers:

Element	Matrix Spike %R	Post-Digestion %R	Samples Affected	Qualifiers
Antimony	12%	84%	All samples	1/U1
Selenium	60%	63%		J-/UJ
Silver	6%	85%		J/UJ
Zinc	40%	68%		J-/UJ

UOS

URS Operating Services, Inc.

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e.,
Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less
than four times the spike amount added, exception: Ag, Hg).

Yes <u>X</u>	No	NA
Comments:	None.	

8. ICP SERIAL DILUTION

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes_X_	No	
Comments:	None.	
The serial dilution was without interference problems as defined by the SOW.		
Yes	No_X_	

Comments: The following serial dilution %Ds were greater than 10% and the original sample result was at least 50* the MDL:

Element	% Difference	Samples Affected	Qualifiers
Arsenic	22%	All samples	J
Beryllium	28%	^ .	
Cadmium	13%		
Chromium	12%		-
Copper	21%		-
Manganese	12%	, -	÷
Nickel	90%		
Zinc	34%		

UOS
URS Operating Services, Inc.

ICP-MS

9.

	The ICP MS	tune met SOW requirements.
	Yes_X_	No NA
	Comments:	The ICP MS instrument was correctly tuned prior to analysis and all tuning criteri were met.
	The minimum analyte masse	number of internal standards were added to the analyses and bracketed the target
•	Yes_X_	No
	Comments:	None.
	All percent re	lative intensities were within 60-125%.
	Yes_X_	No
	Comments:	None.
10.	REGIONAL	QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)
	Regional QA	QC was conducted as initiated by the EPA Region 8.
	Yes No	NA X
	Comments:	The SDG shows no indication of EPA Region 8 initiating any additional QA/QC.
11.	FORM 10 - I	NTERELEMENT CORRECTION FACTORS FOR ICP
	Interelement	corrections for ICP were reported.
	Yes_X_	No
	Comments:	None.
12.	FORM 12 - I	PREPARATION LOG
	Information o	n the preparation of samples for analysis was reported on Form 12.
	Yes_X_	No
	Comments:	None.